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ABSTRACT

The official rules and regulations governing womens' participation in team bowling are presented. Teaching techniques for golf are outlined, and the rules governing golf team play are covered. (JD)

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Bowling—Golf

JANUARY 1979—JANUARY 1981

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NAGWS guide

Bowling—Golf

January 1979—January 1981

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NATIONAL ASSOCIATION FOR GIRLS & WOMEN IN SPORT
American Alliance for Health, Physical Education, and Recreation

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EDITORIAL COMMENT

WHAT?

A NEW BOWLING-GOLF GUIDE?
WHAT HAPPENED TO ARCHERY AND FENCING?

What's up? It's a changing time for girls and women in sport and the National Association for Girls and Women in Sport (NAGWS) is changing. Many of you have been expressing concerns for years regarding patterning of *Guides*. Well, the Guide Committees for Bowling, Golf, Archery and Fencing discussed this new format and thought it would best meet the needs of our readers. So, this is the pattern you'll see for bowling and golf. The new *NAGWS Archery-Fencing Guide* was published in May 1978 and will be good through May 1980.

What do you think? Let us know your reactions to these changes. It is our hope to expand NAGWS services to better meet the needs of teachers, coaches, administrators and officials. So contact any NAGWS officer, members of the Guide Committees, the Guide Coordinators or write:

NAGWS Executive Director
1201 Sixteenth Street, N.W.
Washington, DC 20036

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FOREWORD

Greetings on behalf of the NAGWS Board of Directors. We are appreciative of the work our teachers, coaches, officials and administrators do for Girls and Women in Sport at all levels of competition. Our publications are designed to meet your needs. If you have suggestions for changes or additions we would be receptive to them. I urge you to take advantage of our coaches conferences and events sponsored by structures of NAGWS.

Best wishes in your work and our joint efforts in—"**Building Tomorrow Today . . . committed to quality and equality.**

L. Leotus Morrison
NAGWS President

NATIONAL ASSOCIATION FOR GIRLS AND WOMEN IN SPORT

The National Association for Girls and Women in Sport is a nonprofit, educational organization designed to serve the needs of participants, teachers, coaches, leaders and administrators in sports programs for girls and women. It is one of seven associations of the American Alliance for Health, Physical Education, and Recreation.

Purpose

The purpose of the National Association for Girls and Women in Sport is to foster the development of sports programs for the enrichment of the life of the participant.

Beliefs

The National Association for Girls and Women in Sport believes that:

Sports are an integral part of the culture in which we live.

Sports programs are a part of the total educational experience of the participant when conducted in educational institutions.

Opportunities for instruction and participation in sports appropriate to her skill level should be included in the experience of every girl.

Sports skills and sports participation are valuable social and recreational tools which may be used to enrich the lives of women in our society.

Competition and cooperation may be demonstrated in all sports programs, although the type and intensity of the competition and cooperation will vary with the degree or level of skill of the participants.

An understanding of the relationship between competition and cooperation and the utilization of both within the accepted framework of our society is one of the desirable outcomes of sports participation.

Physical activity is important in the maintenance of the general health of the participant.

Participation in sports contributes to the development of self-confidence and to the establishment of desirable interpersonal relationships.

Functions

The National Association for Girls and Women in Sport promotes desirable sports programs through:

1. Formulating and publicizing guiding principles and standards for the administrator, leader, official, and player.
2. Publishing and interpreting rules governing sports for girls and women.
3. Providing the means for training, evaluating, and rating officials.
4. Disseminating information on the conduct of girls and women's sports.
5. Stimulating, evaluating, and disseminating research in the field of girls and women's sports.
6. Cooperating with allied groups interested in girls and women's sports in order to formulate policies and rules that affect the conduct of women's sports.
7. Providing opportunities for the development of leadership among girls and women for the conduct of their sports programs.

STANDARDS IN SPORTS FOR GIRLS AND WOMEN

Standards in sports activities for girls and women should be based upon the following:

1. Sports activities for girls and women should be taught, coached and officiated by qualified women whenever and wherever possible.
2. Programs should provide every girl with a wide variety of activities.
3. The results of competition should be judged in terms of *benefits to the participants* rather than by the winning of championships or the athletic or commercial advantage to schools or organizations.

Health and Safety Standards for Players

Careful supervision of the health of all players must be provided by –

1. An examination by a qualified physician
2. Written permission by a qualified physician after serious illness or injury
3. Removal of players when they are injured or overfatigued or show signs of emotional instability
4. A healthful, safe, and sanitary environment for sports activity
5. Limitation of competition to a geographical area which will permit players to return at reasonable hours; provision of safe transportation.

General Policies

1. Select the members of all teams so that they play against those of approximately the same ability and maturity.
2. Arrange the schedule of games and practices so as not to place demands on the team or player which would jeopardize the educational objectives of the comprehensive sports program.
3. Discourage any girl from practicing with, or playing with, a team for more than one group while competing in that sport during the same sport season.
4. Promote social events in connection with all forms of competition.

SOURCES OF INFORMATION AND SERVICE

All requests for information about services should be addressed to: Executive Director, National Association for Girls and Women in Sport (NAGWS), AAHPER, 1201—16th Street, N.W., Washington, D.C. 20036.

NATIONAL COACHES COUNCIL

The National Coaches Council was formed by the NAGWS to:

(1) provide a channel of direct communication among coaches at all educational levels
(2) assist in the formulation and dissemination of guiding principles, standards and policies for conducting competitive sports programs for girls and women
(3) keep members informed of current coaching techniques and trends
(4) sponsor clinics and conferences in sports and coaching skills
(5) provide input from coaches to USCSC sports committees and representative assembly
(6) promote cooperative efforts with other sports-centered organizations
(7) provide a united body for positive political action in the realm of girls and women's athletics.

Academies for 10 sports have been established. (Note the application blank for specific listings.) Membership in each Academy is open to any coach of girls or women's sports or any interested person. Annual dues for AAHPER members are $5.00 for one Academy. Non-AAHPER members pay $15.00 annually for membership in one sport Academy. Membership for each additional Academy is $2.00. The $10.00 non-membership fee may be applied at any time toward AAHPER membership.

Get involved . . . JOIN NOW.

For information write:

National Coaches Council
% NAGWS/AAHPER
1201 Sixteenth Street, N.W.
Washington, DC 20036

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Sports Academies of the NATIONAL COACHES COUNCIL

National Association for Girls and Women in Sport: AAHPER
1201 16th St., N.W., Washington, D.C. 20036

NAME _____
last first initial

ADDRESS _____
street

_____
city state zip

FOR OFFICE USE:
DT: _____ AMT: _____
CK: _____

AAHPER MEMBERS: Membership number as it appears on your journal label: _____
Teaching/Coaching level (please check): _____ College _____ Jr. College _____ High School
Jr. High _____ Elementary _____ Other _____
Please check the academies you wish to join:* ☐ Badminton ☐ Basketball ☐ Field Hockey
☐ Gymnastics ☐ Softball ☐ Swimming/Diving ☐ Synchronized Swimming ☐ Tennis
☐ Track & Field ☐ Volleyball
I am willing to serve on an Academy committee: ☐

*AAHPER members: $5.00 for one Academy and $2.00 for each additional Academy. Non-AAHPER members: $15.00 for one Academy and $2.00 each additional Academy. ($10.00 non-membership fee may be applied at any time toward AAHPER membership.)

Please send AAHPER membership information: _____ yes _____ no

NAGWS SPORTS GUIDES COMMITTEES INTEREST INDICATOR

The NAGWS Sport Guide Committee is endeavoring to broaden its base of personnel and to strengthen services to *Guide* readers. The purpose of this form is to offer readers an opportunity to join us in meeting this need. Please complete this form and send it to the Associate Guide Coordinator-elect, Sharon Van Oteghen, DHPER, Memphis State University, Memphis, TN 38152.

Name_____

Professional Address_____

City_____ State_____ ZIP Code_____

1. Check the Sport Committee(s) which would be of interest to you:

___Aquatics	___Fencing	___Soccer
___Archery	___Field Hockey	___Softball
___Badminton	___Flag Football	___Speedball
___Basketball	___Golf	___Squash
___Bowling	___Gymnastics	___Synchronized Swimming
___Competitive Swimming	___Lacrosse	___Team Handball
___Cross-country Track	___Orienteering	___Tennis
___Cross-country Skiing	___Racquetball	___Track and Field
___Diving	___Skiing	___Volleyball
		___Water Polo

2. Would you like to serve as member of a Sports Guide Committee of your interest? ___Yes ___No
3. Would you consider submitting an article to a Guide Committee as a prospective author? ___Yes ___No
   Possible topic or title_____
4. Can you suggest topics for articles which you would like to have included in future *Guides?* (Please indicate sport.)_____
   _____
5. Are there others whom you would recommend for consideration as possible committee members or authors? Please indicate below. (Use additional paper, if necessary.)

   Name_____ Sport(s)_____

   Professional Address_____

   City_____ State_____ Zip Code_____

   Sports Committee Member ☐ Prospective Author ☐ (Check one)

BOWLING

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NAGWS BOWLING GUIDE COMMITTEE*
1977-1979

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*The current *Guide* was prepared by the 1977-79 Committee. The 1981-83 *Guide* will be prepared by the 1979-81 Committee.

COLLEGIATE DIVISION OF THE WIBC

The Collegiate Division of the Women's International Bowling Congress has been in operation on college campuses since September 1966. In its first season, 35 leagues were sanctioned and 1,003 WIBC memberships were issued to college women. For information about this popular program, request a Collegiate Division information packet from: Women's International Bowling Congress, Collegiate Division, 5301 South 76th Street, Greendale, WI 53129.

Membership is open to all women students of colleges, universities and junior colleges who meet their school athletic participation requirements. Membership fees are nominal. Amateur competitive status is mandatory for membership and participation in ABC or WIBC National Collegiate Division Tournaments. Its eligibility rule is reprinted below.

Eligibility and Amateur Standing Rule Collegiate Division of ABC/WIBC

1. General Eligibility—Intracollegiate Competition Membership shall be available to all students who are enrolled in any institution of higher education and who meet the requirements of the institution for such participation.
2. Specific Eligibility—Intercollegiate Competition Eligibility shall be determined by the institution, conference or sponsoring collegiate association regulations for intercollegiate athletics.
3. National Collegiate Division Tournament Eligibility
   To maintain amateur status for such a tournament a bowler must not—
   a. Bowl, substitute or pace in any league or tournament or any other bowling competition where money or merchandise prizes are listed as awards. (*Note:* Individual intercollegiate athletic awards and similar mementos shall be limited to those approved and administered by the institution or its conference or sponsoring collegiate association in keeping with traditional college requirements as to what constitutes an acceptable award.)
   b. Accept personal assistance from a professional games organization or a commercial organization which clearly implies endorsement of any product.
   c. Coach for money.
   d. Accept pay for a radio or television appearance other than expense that might be reasonably incurred in travel to and from the studio.

e. Compete for and/or accept scholarships awarded on bowling skills only.

4. Any violation of general playing rules that would result in suspension from the adult organization will result in loss of collegiate division membership. (*Note*: Bowlers under suspension or ineligible for WIBC and ABC membership are ineligible for membership in the Collegiate Division.)
5. All awards for leagues and tournaments sanctioned by the Collegiate Division must conform to amateur standards as established by the Collegiate Division.

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DEVELOPMENT OF "IN-SCHOOL" BOWLING PROGRAMS

Jean Yeager is a public relations/editor at the American Junior Bowling Congress in Greendale, Wisconsin.

JEAN YEAGER
Greendale, WI 53129

Question: What is an "in-school" bowling program?

Answer: Various types of bowling programs may be considered as "in-school" bowling programs:

(a) Physical education classes being given bowling instruction on the gymnasium floor.

(b) Physical education classes being given bowling instruction at a bowling center.

(c) Physical education classes being given bowling fundamental teaching on the gymnasium floor and then actual bowling experience at a bowling center.

(d) Groups within the school, such as home rooms, being organized by the school during school hours but bowling after school hours (generally considered intramural).

(e) Club groups within the school bowling after school hours.

(f) Interscholastic bowling league with a team or teams representing their school in competition with other school teams.

(g) Leagues organized by bowling centers, service clubs, etc., through the school, and with school cooperation, during school hours but bowling after school hours.

(h) Leagues being organized by bowling centers, with school cooperation in announcing the program, to bowl after school hours.

Question: Who shall we approach to request an in-school bowling program—the board of education, school principal or physical education teacher or director?

Answer: Proper contact within the school system should be based on local conditions, individuals involved and the program being proposed.

Generally, physical education teachers are more easily convinced as sports and recreation constitute their profession. However, school authorities at the higher level may resent an approach being made to a teacher. If you obtain a degree of approval from a teacher, extreme care must be exercised not to put the teacher on the spot in subsequent discussions with the school principal or other authorities. In some instances, however, physical education teachers may be permitted considerable latitude in development of their physical education curriculum.

Question: Who will teach bowling to school students?

Answer: Some states require licensed teachers for all classes during school hours. Other areas even require a licensed teacher for organized after-school activity programs. In some cases, school authorities may temporarily license a qualified bowling instructor who may not be qualified under normal teaching requirements. In many other instances no licensing will be required as long as the bowling instructor is acceptable to the school authorities.

Question: If physical education teachers will teach bowling, are they qualified to do so?

Answer: Most physical education teachers possibly will not be qualified bowling instructors. A training course should be instituted to teach them how to instruct bowling.

If the plan is to teach only bowling fundamentals, the basic training given by AJBC (outlined in *How to Teach Bowling & Organize AJBC Leagues*) will give adequate training. If the plan is to teach bowling fundamentals on the gymnasium floor, AJBC has an "In-School" Bowling Instruction Format which adapts the basic teaching format to gym floor teaching.

If an extensive training course is to be given to the teachers, AJBC can furnish you with a copy of the *The Guide to Teaching Bowling*, which is a 16-hour bowling instruction format designed for physical education teachers. Included in

the course is the history of bowling, bowling specifications, bowling fundamentals, advanced teaching techniques, teaching the handicapped, scorekeeping, and skill grading.

Bowling people who are to teach school students should also be given a training course so everyone involved will teach with the same format. Certain bowling terminology must be watched carefully in order to adapt it to a situation which may be somewhat strange to a bowling instructor. The bowling instructors must now regard themselves as physical education teachers and conduct themselves accordingly.

Question: What will constitute the bowling curriculum?

Answer: The curriculum must be adapted to serve the purpose intended, to fit the number of hours the students will be taking bowling instruction and the length of the teaching periods.

A planned and outlined curriculum is a *must* prior to approaching school authorities. Remember, there are undoubtedly people in your community with other activities which they feel are just as beneficial to boys and girls as we feel bowling is for them. Do not approach school authorities by saying you would like to have their students come to the bowling center and learn to bowl. All of the others with other activities they consider worthwhile also would like to be extended the same privilege by the school. *Plan a curriculum* based on the knowledge you have of the conduct of your school programming. The curriculum may need extensive revision to fit the needs of the school. However, you will have given the school people a base from which they may start.

Question: Who will provide transportation from the school to the bowling center?

Answer: Some school systems own and operate their school buses while others use buses from privately operated firms. The transportation problem is generally solved much easier in the former case. Any private transportation used should be checked carefully for adequate insurance coverage. Any selected transportation plan should be authorized by the school authorities.

Transportation costs may be provided by the school or bowling center or they may be considered in a fee to be paid by the students or the school.

Question: How are schools or students charged for bowling fees?

Answer: Some bowling proprietors, eager to institute a school bowling program, will provide facilities without cost. However, caution must be exercised in this regard to avoid commencing a program which the proprietor may find impossible to continue. Severe criticism will result if an attempt is made to add a fee in order to continue the program.

A stipulated fee based on the number of games to be bowled, number of lanes to be used or on an hourly rental basis may be used. Such cost may be borne by the school or by students paying on an individual basis.

If the students pay an individual fee, the teacher should collect from the students prior to their arrival at the lanes. Otherwise, considerable time may be wasted at each session in collecting fees. It also removes the collecting of fees from the eyes of some critic who may be in the bowling center.

Generally, when the school assumes the cost, the stipulated flat fee arrangement is preferred as it makes it more feasible for projection into the physical education budget.

Any type of payment must necessarily be authorized by school authorities. A written contract is suggested to avoid any misunderstanding.

Question: What insurance coverage is necessary?

Answer: If students will be traveling to a bowling center as a class, check to see whether the school has insurance coverage for the students. Check with the bowling proprietor to be sure the bowling center has adequate liability insurance to cover any eventuality. As pointed out previously, any method of transportation used should be covered with adequate liability insurance.

Question: What is the proprietor's responsibility?

Answer: The proprietor's primary responsibility is to reserve ample space for the students for the specified dates and hours for the scheduled physical education classes. No exceptions to this schedule should be permitted.

A minimum of one lane per three students is recommended. Clean rest rooms, a quiet atmosphere and complete cooperation and assistance with the instructor are essential. Juke boxes, pinball machines and other contrivances should

be disconnected. The instructor should not have to compete with distracting noises.

The sale or consumption of alcoholic beverages must be restricted from the area where the students are bowling.

A good guide is to remember this is a physical education class and the same decorum to be found in the school gym should exist at the bowling center.

Question: What is the instructor's responsibility?

Answer: The instructor must have and follow a planned curriculum.

Prior to the students' arrival, the instructor should arrange bowling shoes in such a fashion that they will be readily accessible to the students upon arrival at the lanes. Don't waste time in getting the class onto the lanes. The bowling balls of proper weights and sizes should be placed where students can get them quickly and easily.

Of primary importance, the instructor must make the class interesting, keep the class moving, start the class on time and finish at the scheduled time. Problems will arise if the class does not arrive back at the school for its next scheduled class.

Question: What are the students' responsibilities?

Answer: Students at a bowling center must conduct themselves in the same manner as is acceptable at a physical education period at school. They should not be permitted to smoke, buy or eat food, candy or soft drinks or linger at the lunch counter or in the restrooms during bowling classes during school hours.

The instructor should expect from them the same attention and participation as is expected in other physical education activities.

Summary: Our hope is this information will furnish you with some guidelines in the development of "in-school" bowling activities.

We will attempt to give you all possible assistance in developing an approach to your school authorities and of a satisfactory curriculum if you will furnish some specific information applicable to your locality.

If you are to be successful in this endeavor we urge you to *go slowly and plan well.*

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TECHNIQUES TO HELP YOU IMPROVE

DICK RITGER

Dick Ritger, a graduate of Wisconsin State University at LaCrosse, is president of the Professional Bowlers Association and was recently inducted into the Bowling Hall of Fame. He conducts bowling clinics throughout the country for colleges and universities and is featured in the A.B.C. publication, Bowlers Guide.

1. Develop the proper *stance* by having your
   a) Feet close together
   b) Weight on opposite starting foot
   c) Knees slightly bent
   d) Hold ball *in line* with bowling shoulder and shoulder in line with target
   e) *Wrist* fairly firm and straight
   f) Thumb positioned toward 11 o'clock
   g) Eyes focused on target.
2. Develop a *sight line.*

Picture in your mind, and also draw an imaginary line on the lane, the path you wish the ball to take once it has been released. We call this a sight line.

Use three coordinates to develop your sight line:

a) The pin or pins
b) The target arrow or board
c) The bowling shoulder

These three coordinates form a straight line—sight line. Now align your shoulder (and ball) so it is in position with this sight line—walk and swing *straight through* your intended line. Sight line bowling improves accuracy.

3. Develop a pendulum swing.

Do not muscle, force, push, pull or guide the ball. Develop a true pendulum swing.

You develop the feel for the pendulum by just letting the ball hang at your side, pull your shoulder up slightly and then begin to swing the ball easily, forward and back.

Keep swinging it and begin to feel the same motion forward and the

same motion back, same speed forward and same speed back. *Let the weight of the ball continue* to *keep* movement forward and back in a true pendulum feel. Do not use extra muscle or effort.

This begins to give the feel of true pendulum. Now as you use your normal approach you should begin to feel less muscle and more true pendulum swing.

4. To help coordinate the pendulum swing with the four steps in the approach, just begin by moving the ball forward in the push away at the same time you take your first step.

   Ball forward and slightly downward in the pushaway, but ball and foot move at exactly the same time.

   The coordination of the four steps and pendulum swing will be in rhythm throughout the approach if the pushaway and steps are coordinated.

5. Develop "perfect" balance if possible at the release point. The better the balance—the greater the accuracy, lift, ball control, thus pin action, strikes and higher scores.

   Balance should be held on the sliding foot, with a good knee bend, follow-through in line with the intended path of the ball, and have the shoulders at right angles to the intended target.

   To help develop good balance, if it is a problem—

   a) Keep your back foot on the floor while sliding.
   b) Develop a deeper knee bend.
   c) Push slightly downward with opposite the ball hand as you approach. This creates counter balance and better balance.

6. Develop "concepts" of bowling.
   a) Develop a Hook Ball

      The only way to become a high average bowler is to roll a hook ball. The concept is that a hook ball will not deflect as much as a straight ball upon contact with the one-three pocket, (right-handed bowler) thus less deflection means more strikes.

   b) Develop a concept for spare shooting by using a scientific spare system.

      There are scientific spare systems based on mathematical formulas which help bowlers improve their spare game immensely.

   c) Develop knowledge about the lane surface, why the ball and lane react differently in different bowling centers. Develop a concept about how to adjust to the varying lane conditions.

      Learn about the concepts pertaining to ball hardness and ball balance/weight.

For all of the above, search out a knowledgeable instructor and/or books, periodicals which can give the current up-to-date information.

ADVANCED TEACHING TECHNIQUES*

Mechanics of Ball Action

What a ball does after it leaves your hand: Skids, rolls and takes.

Normal figures released by the ABC:

	Normal	Too Fast	Too Slow
Skids	15′	30′	5′
Rolls	25′	25′	25′
Takes	20′	5′	30′
Total	60′	60′	60′

The amount that a normal ball takes is 20.′ A slow ball has 30′ of take. That is why a slow ball fades and dies. This is the cause of 8-10, 5-pin, other leaves. The ball dies before reaching the pins.

The speed ball has a skid of 30,′ the roll is the same as 25,′ but it has only 5′ of take. This is the reason a speed ball does not hook.

Speed of the Ball—Increasing Or Decreasing:

Increasing Speed	(Check)	Decreasing Speed
1. Using weight of ball	(Timing)	Arm not forcing ball
2. Ball held higher	(Starting Position)	Ball held lower
3. More	(Pushaway)	Less
4. Higher	(Backswing)	Lower
5. Faster	(Approach)	Slower
6. Longer	(Approach)	Shorter

One of the above, or any combination of the six, can be used to increase or decrease the speed of the ball.

*Reprinted by permission of The American Junior Bowling Congress.

Major or key Faults

1. First step too fast. (Results: Races to the foul line. Arm swing is late. Causes an abrupt stop at the foul line. The arm swing is trying to catch up and is jerky. Bowler hops at the foul line.)
2. No pushaway. Have a forced back swing—not natural. (Results: poor timing; no consistency to delivery, one is too fast and one is too slow; poor follow-through or no follow-through.)
3. Too high a backswing. Ball is too fast. (To lower backswing: tell them not to pass their body. It is a gimmick to break a high backswing. Normally, the ball will go past the body but will reduce the backswing to where it is normal.)
4. Incorrect swing of the arm. Sidearming the ball.
5. Not facing target in starting position.
6. Too long a first step. (Bowler off balance.)
7. First step to the right or left instead of straight at the target.
8. Too long a second step (throws off the timing).
9. Shoulder back on the 3rd step (on a 4-step delivery).
10. Pause or hesitation after or on one or more of the steps.
11. Last step is a lunge for the foul line. (To correct: have them deliberately slow down the last step.)

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BOWLING VISUAL AIDS

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Numbers in parentheses refer to film distributors listed on page 37.

America Bowls at the ABC. 16mm, 15 min., sound, b&w. Free loan (2). Presents the 1960 ABC Tournament. Includes many scenes of tournament play featuring Joe Wilman, Buzz Fazio, Joe Norris, Buddy Bomar and Don Carter.

Bowling. 16mm, 15 min., sound, color. Free loan (2). Entertainment film, showing scenes of Don Ellis performing trick shots in bowling.

Bowling Fever. 16mm, 12 min., sound, b&w. Free loan (2). Presents bowling techniques and the pleasures derived from bowling.

Bowling Fundamentals. 16mm, 15 min., b&w. Rental $5 (3). Problems of beginner with progress through instruction in grasp, stance, approach, release of ball, and follow-through.

Decision. 16mm, 20 min., sound, color. Free loan (2). Story of how a woman's discovery of bowling developed new friends and interests.

Duckpin Bowling. 16mm, 10 min., sound, b&w. Free loan (2). An interesting film and duckpin bowling—everybody's game. History of bowling and basic instructions on how to enjoy the sport.

Fun on the Lanes: Young America Goes Bowling. 16mm, 17 min., sound, b&w. Free loan (1). 1964 AJBC league in action. Shows formation of league, election of officers, league play, season-ending awards banquets.

King of the Pins. 16mm, 10 min., sound, b&w. Free loan (2). Shows Joe Wilman and includes slapstick comedy by Buddy Hackett. Instructional as well as entertaining.

Lets Roll with the Champions. 16mm, 15 min., sound, b&w. Free loan (2). Features the St. Louis Budweiser bowling team demonstrating basic fundamentals of bowling and performing precision trick shots.

New Horizons. 16mm, 20 min., sound, color. Free loan (2). Informative film about how a bowling ball and pin are made. A trip to one of the Brunswick factories shows the making and operation of the automatic pinsetter.

On The Spot. 16mm, 12½ min., sound. Free loan (1, 2, 4). Dick Weber, Dave Davis and Judy Cook demonstrate the importance of choosing a

target on the lane over which to roll the ball. Several basic spare pick-ups are explained. Film uses slow motion, stop action, overprinted diagrams and split-screen presentations.

Tell It to the Girls. 16mm, 22 min., sound. Free loan (4). WIBC services are described by a typical league member.

Tenpin Showcase. 16mm, 18½ min., sound, b&w. Free loan (1). Includes highlights of ABC Tournament, college champions and Master's Tournament.

To The Foul Line. 16mm, 12½ min., sound. Free loan (1, 2, 4). Dick Weber demonstrates arm and backswing, the walk to the foul line, and proper ball release. Judy Cook shows how to do these in a feminine style. Film uses slow motion, stop action, overprinted diagrams and split-screen presentations.

Top Star Bowling. 16mm, 50 min., sound, b&w. Free loan (3). Brunswick has made available 49 filmed matches from the current Top Star Bowling Television Series. Programs: 7—Joy Abel *vs* Marion Ladewig; 20-Shirley Garms *vs* LaVerne Carter; 33-Judy Audsley *vs* Marion Ladewig; and 46—Joy Abel *vs* LaVerne Carter.

Who's Keeping Score. 16mm, 12 min., sound, color. Free loan (3). An interesting and informative film about the latest innovations in bowling. Shows how the Brunswick Automatic Scorer completely eliminates manual scorekeeping and adds more fun and excitement to the game through its computerized system.

Film Distributors

(1) American Bowling Congress, Film Library, 1572 E. Capitol Dr., Milwaukee, WI 53211.
(2) Brunswick Corporation, Bowling Division Film Library, Don Hill, 200 S. Chester St., Park Ridge, IL 60068.
(3) ROA's Films, 1696 N. Astor St., Milwaukee, WI 53202.
(4) Women's International Bowling Congress, Film Dept., 5301 S. 76th St., Greendale, WI 53129.

TENPIN RULES AND REGULATIONS*

SCORING THE GAME

Rule 1. a. A game of American Tenpins shall consist of ten frames. Each player shall bowl two balls in each of the first nine frames except when she shall make a strike. A player who scores a strike or spare in the tenth frame shall deliver three balls.

b. A ball is legally delivered when it leaves the bowler's possession and crosses the foul line into playing territory. A bowling ball must be delivered entirely by manual means and shall not incorporate any device either in the ball or affixed to it which is either detached at time of delivery or is a moving part in the ball during delivery except that any person who has had her hand or major portion thereof amputated may use special equipment to aid in grasping and delivering the ball providing the special equipment is in lieu of the amputee's hand.

c. Where an artificial or medical aid is necessary for grasping and delivering the ball because of any other disability of the hand or arm, permission to use the aid in sanctioned competition may be granted by the WIBC under the following conditions:

1. The aid does not incorporate a mechanical device with moving parts which would impart a force or impetus to the ball.
2. A description or drawing and model of the aid is furnished to WIBC.
3. A doctor's certificate describing the disability together with the doctor's recommendation that the aid should be used is furnished to WIBC.

If permission is not granted, the claimant shall have the right to appeal to the WIBC Legal Committee.

Should permission be granted for the use of an artificial or medical aid, a special identification card (not a WIBC membership card) will be issued to the applicant indicating that the aid may be used in sanctioned competition providing the bowler has a current membership card and the

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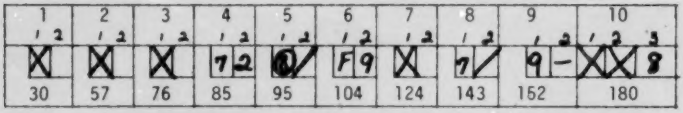
use of the aid is specifically authorized by the league or tournament management.

Permission to use the device may be withdrawn for cause.



STRIKE

Rule 2. A strike is recorded when the player completes a legal delivery and bowls down the full setup of ten pins on the first ball. It is designated by an (X) in the small square in the upper right corner of the frame in which the complete set of ten pins is bowled down with the first ball. The count in each frame where a strike is bowled shall be left open until the player has completed two more deliveries. The maximum count on one strike when followed by a spare is 20.

DOUBLE

Rule 3. When a player bowls two strikes in succession legally delivered, she shall have scored a double. The count in the frame where the first strike was bowled shall be left open until the player has completed her next delivery. When all pins are downed twice in succession, the count for the first strike is 20 plus the number of pins knocked down with the first ball of the third frame following. The maximum count on a double figuring a nine-pin count on the first ball following the second strike is 29.

TRIPLE OR TURKEY

Rule 4. In scoring three successive strikes, the player shall be credited with 30 pins in the frame in which the first strike was bowled. Thus, in a game of ten full frames, a player must bowl 12 strikes in succession in order to bowl a game of 300.

SPARE

Rule 5. Any player who bowls down the remaining pins with a legally delivered second ball in any frame has scored a spare. A spare is designated by a (/) in the small square in the upper right corner of the

frame. The count in such frame proper is left open until the player shall have bowled her first ball in the next frame following, when the number of pins knocked down by the first ball shall be added to the ten pins represented by her spare, and the to[illegible]hall be credited therein. When a spare is scored in the tenth frame, [illegible] third ball shall be bowled in that frame.

ERR[illegible]

Rule 6. A player shall have made an [illegible] when she fails to bowl down all ten pins after having completed two [illegible]veries in a given frame provided the pins left standing after the first [illegible]ll is bowled do not constitute a split. An error is designated by a (-) in the small square in the upper right-hand corner of the frame in which the error is made. The number of pins knocked down after the first delivery, before the player bowls at the remaining pins, should be marked in the upper right corner of the frame. The count in every frame where an error is committed shall be recorded immediately following the player's delivery.

SPLIT

Rule 7. A split shall be a set up of pins remaining standing after the first ball has been legally delivered provided the headpin is down, and

(1) At least one pin is down between two or more pins which remain standing, as for example: 7-9, or 3-10.
(2) At least one pin is down immediately ahead of two or more pins which remain standing, as for example: 5-6.

A split is designated by a (0) in the small square in the upper right-hand corner of the frame in which the split occurs. The number of pins knocked down on the first delivery should be marked in the upper right-hand corner before the second ball is rolled.

PINFALL-LEGAL

Rule 8. Every ball delivered by the player shall count, unless declared a dead ball. Pins must then be respotted after the cause for declaring such dead ball has been removed.

(1) Pins which are knocked down by another pin or pins rebounding in play from the side partition, rear cushion, or sweep bar when it is at rest on the pin deck prior to sweeping dead wood are counted as pins down.

(2) If, when rolling at a full setup or in order to make a spare, it is

discovered immediately after the ball has been delivered that one or more pins are improperly set, although not missing, the ball and resulting pinfall shall be counted. It is each player's responsibility to determine if the setup is correct. She shall insist that any pins incorrectly set be respotted before delivering her ball, otherwise she implies that the setup is satisfactory. No change in the position of any pins which are left standing can be made after a previous delivery in order to make a spare, unless the pin setter has moved or misplaced any pin after the previous delivery and prior to the bowling of the next ball.

(3) Pins which are knocked down by a fair ball, and remain lying on the lane or in the gutters, or which lean so as to touch kickbacks or side partitions, are termed dead wood and counted as pins down, and must be removed before the next ball is bowled.

PINFALL-ILLEGAL

Rule 9. When any of the following incidents occur the ball counts as a ball rolled, but pins knocked down shall not count:

(1) When pins are knocked down or displaced by a ball which leaves the lane before reaching the pins.
(2) When a ball rebounds from the rear cushion.
(3) When pins come in contact with the body, arms or legs of a human pin setter and rebound.
(4) A standing pin which falls when it is touched by mechanical pinsetting equipment, or when dead wood is removed or is knocked down by a human pinsetter, shall not count and must be replaced on the pin spot inscribed on the pin deck where it originally stood before delivery of the ball.
(5) Pins which are bowled off the lane, rebound and remain standing on the lane must be counted as pins standing.
(6) If in delivering the ball a foul is committed, any pins knocked down by such delivery shall not be counted.

DEAD BALL

Rule 10. A ball shall be declared dead if any of the following occur, in which case such ball shall not count. The pin must be respotted after the cause for declaring such dead ball has been removed and player shall be required to rebowl.

(a) If, after the player delivers her ball and attention is immediately called to the fact that one or more pins were missing from the setup.

(b) When a human pin setter removes or interferes with any pin or pins before they stop rolling or before the ball reaches the pins.
(c) When a player bowls on the wrong lane or out of turn.
(d) When a player is interfered with by a pin setter, another bowler, spectator, or moving object as the ball is being delivered and before delivery is completed, player must then and there accept the resulting pinfall or demand that pins be respotted.
(e) When any pins at which she is bowling are moved or knocked down in any manner, as the player is delivering the ball and before the ball reaches the pins.
(f) When a player's ball comes in contact with any foreign obstacle.

NO PINS MAY BE CONCEDED

Rule 11. No pins may be conceded and only those actually knocked down or moved entirely off the playing surface of the lane as a result of the legal delivery of the ball by the player may be counted. Every frame must be completed at the time the player is bowling in her regular order.

REPLACEMENT OF PINS

Rule 12. Should a pin be broken or otherwise badly damaged during the game, it shall be replaced at once by another as nearly uniform in weight and condition as possible with the set in use. The league or tournament officials shall in all cases be the judges in the matter of replacement of such pins.

A broken pin does not change the score made by a bowler. The number of pins knocked down are counted, after which the broken pin is replaced.

BOWLING ON WRONG LANE

Rule 13. When only one player of the lead-off on both teams bowl on the wrong lane and the error is discovered before another player has bowled, a dead ball shall be declared and the player(s) required to rebowl on the correct lane(s).

When more than one player on the same team has bowled on the wrong lane, the game shall be completed without adjustment and the next game shall be started on the correctly scheduled lane.

In singles match play competition, where a player normally bowls two frames each time it is her turn to bowl, and a player bowls on the wrong lane for these two frames, a dead ball shall be declared and the player required to rebowl both frames on the correct lanes providing the error is

discovered prior to the time the opposing player has made a legal delivery. If the error is not discovered until the opposing player has bowled, the score shall count and the player shall be required to bowl her subsequent frames on the correct lanes.

BALLS—PRIVATE OWNERSHIP

Rule 14. Bowling balls used in the game and marked by their owners are considered private and other participants in the game are prohibited from using the same, unless the owner consents to such use.

> *Note:* A bowling ball shall not be more than 16 pounds in weight after drilling.

FOUL—DEFINITION OF

Rule 15. A foul is committed, with no pinfall being credited to the player although the ball counts as a ball rolled, when a part of the bowler's person encroaches upon or goes beyond the foul line and touches any part of the lane, equipment or building during or after executing a legal delivery. A ball is in play and a foul may be called after legal delivery has been made and until the same or another player is on the approach in position to make a succeeding delivery.

If the player commits a foul which is apparent to both captains or one or more members of each of the opposing teams competing in a league or tournament on the same pair of lanes where the foul is committed, or to the official scorer or a tournament official, and should the foul judge or umpire through negligence fail to see it committed or an ABC approved automatic foul detecting device fails to record it, a foul shall nevertheless be declared and so recorded.

DELIBERATE FOUL

Rule 16. If a player deliberately fouls to benefit by the calling of a foul, the player shall receive 0 pinfall for that delivery and shall not be allowed any further deliveries in that frame.

FOUL COUNTS AS BALL BOWLED

Rule 17. A foul ball shall be recorded as a ball bowled by the player, but any pins bowled down when a foul is committed shall not count. When

the player fouls upon delivering the first ball of a frame, all pins knocked down must be respotted, and only those pins knocked down by the second ball may be counted. If she bowls down all the pins with her second ball after fouling with the first, it shall be scored as a spare. When less than ten pins are bowled down on the second ball after fouling on the first, it shall be scored as an error. A player who fouls when delivering her second ball of a frame shall be credited with only those pins bowled down with her first ball, provided no foul was committed when the first ball was delivered. When a bowler fouls during the delivery of her first ball in the tenth frame and bowls down all ten pins with her second ball (making a spare), she bowls a third ball and is credited with a spare plus the pins bowled down with the third ball. When a player fouls while delivering her third ball in the tenth frame, only those pins bowled down in delivering her first two balls shall be counted.

AJBC RULES COVERING ORGANIZATION OF LEAGUES*

DEFINITION AND QUALIFICATIONS

Rule 100. Any league consisting of four or more teams with a minimum of two members, per team, and bowling according to a prearranged schedule shall be defined as a league, and may be sanctioned with the American Junior Bowling Congress.

Rule 101. Singles leagues with a minimum of four junior members may be sanctioned. Juniors bowling with adults in leagues where no cash or merchandise prizes are offered may also be sanctioned by AJBC.

> *Editor's Note:* Awards to both adult and junior bowlers in adult-junior leagues must be confined to awards permitted in their state under the AJBC eligibility rule. The maximum value per award as outlined in the current AJBC Program must be followed for both adults and juniors.

Rule 102. Such league, if sanctioned, shall bowl its schedule regularly as provided in its Constitution.

Rule 103. AJBC leagues may consist of all boys or all girls, or boys and girls. Leagues may be organized to include bowlers of all age levels in the same league, but AJBC special awards are based on the individual's age division.

> *Editor's Note:* AJBC age divisions based on individual's age as of August 1 of the current season are:
> Bantams—12 years of age and under
> Juniors—13 through 15 years of age
> Seniors—16 through 21 years of age

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MEMBERSHIP—MEMBERSHIP DUES

Rule 104. Membership in AJBC is open to all boys and girls, qualified under the AJBC eligibility rule, who have not reached their 22nd birthday on or before August 1 of the current bowling year. Once sanctioned under this rule an AJBC member is an eligible bowler until July 31 of the current bowling year, unless under suspension.

Rule 105. The AJBC current membership year runs from August 1 through July 31 of the following year. Junior membership shall expire on July 31 of the season in which issued except that membership will continue to be valid in tournaments until October 1 for those who are under 22 years of age on August 1. In addition membership issued in a league which starts its playing schedule on or after March 15 shall be valid for the following season for those who are under 22 years of age as of August 1.

Rule 106. The AJBC membership fee shall be 50 cents per member which shall be submitted to the local AJBC association along with a league sanction application (Form AJ-6) and an individual membership application (Form AJ-14) for each member. The sanction application and membership dues must be filed with the local AJBC association secretary within 30 days after the start of the league's schedule. Supplementary league members must complete an individual membership application (Form AJ-14) which shall be submitted to the local AJBC association.

The payment of one AJBC membership fee entitles the member to participate in any number of leagues. AJBC members participating in a league other than the league through which they are sanctioned must complete an individual membership application (Form AJ-14) for each league in which they participate.

Rule 107. The local AJBC association shall be permitted to charge an additional 50 cents as its portion of the membership fee to help defray the cost of local services to the AJBC members in the area. In no case shall the combined membership fee for an AJBC member exceed $1.00.

Rule 108. Membership in AJBC can be obtained through a league only. No unattached memberships are given. In a league comprised entirely of junior bowlers, all participants must be members of AJBC. In adult-junior leagues, all junior bowlers must be members of AJBC if the league is to be issued an AJBC sanction. No league will be accepted for sanctioning directly to the AJBC office.

Editor's Note: If there is no local AJBC association serving the area the sanction application will be filed through the ABC local association.

Rule 109. A league whose schedule begins on or after August 1 and before March 15 is classified as a winter league. A league whose schedule begins on or after March 15 and ends prior to October 1 is classified as a summer league. Any league ending after October 1 will be classified as a winter league in the following bowling season. All members of such a league are required to purchase the following season's membership cards.

Where the number of junior bowlers is constant on each team in adult-junior leagues all AJBC awards shall be made available. Where the number is not constant, the junior members shall qualify for special awards. League awards in such leagues shall be made available upon special application to AJBC.

Rule 110. AJBC Eligibility Rule

Members of the American Junior Bowling Congress may:

(a) Bowl for trophies, medals, emblems or other symbolic awards within the maximum cost for such awards as established by the state high school athletic association in their state.

(b) Bowl in events within the state of their residency and adjacent states if the travel distance into another state does not exceed 600 miles round trip, unless the state high school athletic association rules in their state specify a lesser number of miles.

(c) In the year of their graduation from high school compete in events offering college scholarships or grants in aid if bowling scores do not constitute more than fifty percent (50%) of the considerations for determining the recipients of such awards. Such events must conform with the state high school athletic association eligibility rules.

Travel expenses must be disbursed by an adult except in instances where an AJBC member is personally paying his own expenses.

Any member of AJBC, or any individual under the age of twenty-two (22) who is not a member, who bowls, substitutes or paces in any type of bowling competition where money or merchandise prizes are offered on the basis of bowling score, bowling skill or position standing, shall be ineligible for AJBC membership as of the date of such participation.

Note: Merchandise prizes shall be construed to include any prize of commercial or intrinsic value such as, but not limited to, free bowling games(s)—bowling equipment, personalized or otherwise—vacation trips—trading stamps, etc.

The period of ineligibility for AJBC membership shall be determined in conformance with the individual state high school athletic association rules by the State Junior Association Secretary acting on behalf of AJBC. Such individuals shall be advised in writing of the period of ineligibility, which shall be a minimum of sixty (60) days but not to exceed one year.

Any bowler suspended or disqualified from the denied AJBC membership by reason of this rule may make written application for membership privileges to the local association secretary, but such application cannot be granted until the applicant has concluded the specified period of ineligibility during which time he has refrained from competing in AJBC sanctioned competition and all bowling competition where money or merchandise prizes are listed as awards. Action on such application will be considered in accordance with the provision of this rule and the respective state high school athletic association eligibility rule. Ineligibility remains effective until the individuals have been notified in writing by the state junior association secretary of their reinstatement.

The AJBC Eligibility Rule Applies:

1. To AJBC members and to applicants for AJBC membership who violate the rule prior to such application.
2. To any type of bowling competition—leagues, tournaments, open play, television events, etc.,—whether sanctioned or unsanctioned, sanctionable or unsanctionable.
3. To bowling, substituting or pacing.
4. Whether there is on behalf of the youngster, personally or otherwise, payment or nonpayment to a prize fund, acceptance of or refusal to accept a prize or portion thereof; scores being counted or not being counted.

Rule 21. Derogatory Conduct. When a bowler is suspended from membership in the American Junior Bowling Congress for conduct derogatory to the best interest of the game, he shall be prohibited and disqualified from thereafter playing with any AJBC sanctioned league or tournament until reinstated by the American Junior Bowling Congress. Any such team which shall knowingly play such disqualified player shall forfeit all games in which such player has taken part and such team may be suspended from membership in the American Junior Bowling Congress.

AJBC CODE

The AJBC suggests this code as a guide to bowling proprietors, instructors, coaches, and others interested in junior bowling to assure a program of wholesome environment, protected athletic eligibility, healthful recreation, and fun for young citizens.

No alcoholic beverages shall be served or consumed in the area where members of the American Junior Bowling Congress are engaged in AJBC functions.

AJBC members shall refrain from smoking during the time any AJBC function in which they are participating is in progress.

AJBC members shall not play pinball machines while any AJBC function or school bowling activity is in progress.

OFFICIAL DUCKPIN RULES*

TEAM MEMBERSHIP

1. In a five-man team league, a legal team shall consist of five bowlers, four bowlers and one dummy or three bowlers and two dummies. In a four-man team league two dummies shall be allowed per team. In a three-man team league only one dummy shall be allowed per team. In a two-man team, or doubles league, one dummy may be allowed, at the option of the league only. (*Note*—The members of the team may be *regular* members of that team, *alternate* members of that team or *alternate members provided by the league*. An alternate bowler is a person bowling in the place of a regular team member. A substitute bowler is a person finishing a game that has already been started by a regular or alternate bowler. A dummy shall be considered as a regular member of the team but not as a bowler. Any and all bowlers who are eligible to bowl with a team at any time are eligible bowlers of that team and any, or all, such bowlers may be used to constitute an eligible team.)

In a non-handicap mixed league where a male member of the team is absent, or is withdrawn from the lineup, he must be replaced with another male bowler or with a male dummy score. Likewise, if a female member of the team is absent, or is withdrawn from the lineup, she must be replaced with another female bowler or with a female dummy score.

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*Excerpts from rules reprinted with permission of National Duckpin Bowling Congress.

(*Note*—in handicap mixed leagues the use of male replacements for female bowlers or female replacements for male bowlers is allowed with the difference created in the handicap automatically taking care of such changes.)

In a non-handicap "limited average" mixed league a male bowler may replace a female bowler and a female may replace a male bowler.

PLAYER SUBSTITUTION

2. The captain of any team may withdraw any player, or dummy, in any game and substitute any eligible player or a dummy, at any time, but the player withdrawn shall not be eligible to again roll in the game from which he was withdrawn. The score shall be credited to the bowler beginning the game or completing a game started with a dummy or blind.

If a player withdraws and no substitution is made, the player's score for the game is the total of his actual score plus the dummy score of the league for each of the remaining frames of the game.

No recognition for any awards by the National Duckpin Bowling Congress can be given for any individual score in which a substitute (meaning a bowler substituting for another bowler who has already started the game) is involved.

DUMMY SCORE AS PINFALL

6. The dummy score, as regularly established by league rule, shall count as pinfall in every instance for the team being obliged to use such dummy score, and also for league awards if the league so determines.

PLAYING LANES

7. The lanes immediately adjoining each other shall be used in all games. The contesting teams shall successively and in regular order roll one frame on one lane, and for the next frame alternate and use the other lane, so alternating each frame until the game is completed. The teams must start the following game on the same lanes on which the tenth frame of the previous game was rolled.

Except that, at the option of a league, two frames may be rolled consecutively on one lane by each bowler on the team before alternating lanes. Where this procedure is followed the teams will start each succeeding game on the opposite lane from which the tenth frame of the previous game was rolled.

The exception shall apply to leagues only, and then only at the option of the league.

The captain of the visiting team shall be allowed choice of the lanes.

MACHINE BREAKDOWN

8. When one machine on a pair of lanes using automatic pinsetting machines "breaks down" during a league match or in any tournament and another pair of lanes is not available for use, then the bowlers "*shall*" continue rolling on one lane until the "broken down" machine is again in operation, at which time the bowlers shall resume bowling according to normal, regular procedure. During the period that the bowlers are bowling on one lane, the bowlers shall alternate in proper order as if bowling on two lanes, i.e., the leadoff bowler on one team being followed by the leadoff bowler on the other team, then the second bowler on the one team, followed by the second bowler on the other team, etc.

If a machine breakdown occurs during a league match or in any tournament necessitating moving the bowlers to another pair of lanes, the bowlers will change lanes and continue the game in the frame then being rolled, and shall remain on these lanes until the completion of their scheduled match unless there is a breakdown on these lanes.

This rule may be enforced to cover any number of breakdowns.

BOWLING PROCEDURE

9. The games shall consist of ten frames on each side. Three balls shall be allowed in each frame, to be rolled one at a time. All strikes and spares made in the tenth frame or any extra frame, shall be rolled off before leaving the lane, and on the same lane made. A strike or spare made on the roll-off of one made in tenth frame shall not be included in totals for season.

No pins shall be conceded. All pinfall to be accredited to a bowler must have been knocked down because of and by action of a legally delivered ball.

No game can be started until the preceding game is finished; i.e. the leadoff bowler shall not start the succeeding game until the anchor man of the opposing team has completed rolling the preceding game.

WHO SHALL ROLL FIRST?

10. Bowlers should bowl as soon as the pins have been set up on their lanes. In the event of a controversy as to who shall bowl first in the last

box of the game the bowler on the right shall bowl first, completing the box.

STARTING TIME FOR LEAGUE PLAY

11. Play shall begin at the starting time fixed by the league (this means the exact starting time—no grace period allowed). Should only three or four players be ready at that time, the team shall start with the players that are present and should the other players appear AT ANY TIME during the game, they may be added and begin play in the frame then being rolled by the team. Dummy scores, as fixed by the league, are to be used for all prior frames for such tardy players. No bowler will be allowed to catch up any frame that has been missed.

If there is not a legal team present at the starting time fixed by the rules of the league, the game or games shall be declared forfeited. All games must be rolled by the team claiming the forfeit. Forfeits cannot be claimed the first four weeks of a league schedule when a league has an odd number of teams and organizational work is being done to round out the league; postponements or make-up matches must be allowed in this case. A team can forfeit only one game at a time.

Those players who are present at the start of the game may roll for their individual average and score but the opposing team must play its legal team. The scores of the players rolling for their individual averages shall *not* count as pinfall for the forfeiting team, and the forfeiting team shall not be credited with dummy scores as pinfall for those bowlers who are absent.

TIE GAME

14. In the event of a tie game, first or second game, each bowler will use for the roll-off the first frame of the succeeding game, and the highest total pinfall for the first frame of the succeeding game shall decide the winner of the previous tie game, and in the event that the total of the first frame for each team ends in a tie, bowlers will continue in the same manner for the next frame, and so on until the tie is broken. However, should the tie occur in the final game the teams shall change lanes for the next frame, and if the tie remains unbroken, teams shall continue to alternate lanes until the tie is broken.

In case of a tie game where a dummy is being used, the team using the dummy shall be allowed one-tenth of the dummy score for each succeeding box after the tenth until the tie shall be broken, fractions of over

one-half to count as one pin, fractions of one-half and under not to count.

Pinfall in any frame after the tenth, to determine the winner of a tie game, shall not count as pinfall in the records.

Failure of team members to remain on the lanes until the totals of the two competing teams are computed shall, in a tie game require such teams to bowl the extra boxes needed to break the tie with only those members then present. In such instances the scores of those competing, plus the regular dummy score of the league for the absent player or players, shall be used. If either team fails to have a legal number of bowlers (3 bowlers and 2 dummies, 4 bowlers and 1 dummy or 5 bowlers) remaining, the team that does have such legal number of bowlers remaining shall be declared as the winner of the tie game by forfeit.

TEAMS BOWLING ALONE

17. When any game is declared forfeited under the rules, the team present and not at fault must bowl any and all games to be bowled as though they were actually contested and the scores and averages shall be credited and recorded.

Any team which rolls a league match not scheduled against another team, or where the opposing team does not appear, unless postponement has previously been arranged for, shall receive credit for three games won by forfeit. (A team cannot lose a forfeit match.)

Such forfeits shall mean a win of three games, or four points, whichever scoring system is being used by the league. No team shall roll against any previously determined scores and/or team averages.

FINAL POSITIONS OF TEAMS IN LEAGUE STANDING

18. Where teams are tied in the number of games won and lost, whether in the first or second half of a split schedule, the final positions of such teams in the league standings shall be determined by total pinfall, *except*, where there is a specific league rule to the contrary, then the league rule shall apply.

FOUL LINE JUDGE

19. In all events or league games under the jurisdiction of the Congress an official foul line judge or an approved automatic foul detecting device shall be used.

In the event an automatic foul detecting device fails to operate properly

the opposing team Captains shall be responsible for calling all fouls until the device has been satisfactorily repaired and operating.

The foul line judge shall take special care to declare all fouls immediately upon their being committed, unasked, and in a distinct, audible voice. The foul line judge's decision as to fouls shall be final. No appeal shall be allowed from the decision of the foul line judge except where it is apparent that a foul may have been called on the wrong player. Any player who shall continue to dispute the decisions of a foul line judge may be suspended from further participation in the match in question by the foul line judge.

CHANGING FOUL LINE JUDGE

20. No foul line judge shall be changed during a league game, or an advertised match game, without the consent of a majority of the team captains involved.

FOULS

21. A foul is committed when any part of the bowler's person or clothing encroaches upon or goes beyond the foul line and touches any part of any lane equipment or any part of the building which is beyond the foul line during or after the act of delivery, whether or not the ball is released. A ball is in play and a foul may be called after a delivery has been made and until the same or another, player is on the approach in position to make a succeeding delivery.

If, in the act of delivering the ball any object falls from the bowler's clothing or person and breaks the light beam so as to register a foul, a foul shall be called and so recorded. However, if any such object falls onto the lane beyond the foul line and the light beam is not broken, no foul shall be called.

No balls or pins will be allowed in the gutter or on the lane before rolling. Any ball delivered before deadwood is removed or while pins or balls are in the gutter or on the lane shall be deemed a foul and handled accordingly.

No appeal shall be allowed when an approved automatic foul detecting device registers a foul except when it can be proven that the device was not operating properly. (*Note*—A player may at any time cross over the foul line for the purpose of removing an obstruction from the lane, etc., upon notification to the foul line judge, opposing team captain or member of the opposing team or tournament official of his desire to do so.)

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All fouls shall be handled in accordance with the following rules: When a foul occurs on the first ball, all pins shall be respotted, that ball and the pins knocked down by the ball are lost and the bowler has two balls remaining in that box. When a foul occurs on the second ball, pins knocked down, if any, shall be counted as knocked down by the third ball, the second ball is lost and the bowler is through for that box, i.e., if the bowler spared on the second ball and fouled, it is an automatic 10 box and the bowler is through for the box. When a foul occurs on the third ball, both the ball and the pins knocked down by that ball are lost and the bowler is through for that box.

Should a bowler make a strike in the 10th box or any extra box and foul on the first roll-off ball, that ball shall be lost, the pins knocked down by that ball counted as though knocked down by the second roll-off ball, and the bowler is through for that box. Should a foul occur on the second roll-off ball, both the ball and the pins knocked down by the ball are lost.

Should a bowler make a spare in the 10th box or any extra box and foul on the roll-off ball, both the ball and the pins knocked down by that ball shall be lost.

APPARENT AND VISIBLE FOUL

22. If a player commits a foul which is apparent to a tournament official, or to an official scorer, or to both captains, or to one or more members of each of the opposing teams competing in a league or tournament contest on the same pair of lanes where the foul is committed and the foul judge through negligence fails to see it committed or the automatic foul detecting device fails to record it, a foul shall nevertheless be declared and so recorded.

DELIBERATE FOUL

23. If it is apparent that a player deliberately fouls, to benefit by the calling of such foul, he shall be immediately disqualified from further participation in the match or event then in play.

Where an automatic pinsetting machine is in use and it is apparent that a bowler deliberately steps on or pushes the pedal or button that actuates the deadwood removal mechanism of the machine to benefit by such action, then the act of the bowler shall be considered as a deliberate foul, recorded as such and bearing the same penalty as outlined in the foregoing paragraph.

In league play any eligible substitute may immediately replace such

disqualified bowler, beginning with the box following the one in which the bowler was disqualified, and shall be allowed only the pins knocked down prior to and including the box and delivery of the ball on which the apparent deliberate foul was made.

(*Note*—The above foul rules shall be used for both manual and automatic machine pinsetting.)

RESPOTTING PINS

24. Should any ball delivered leave the lane *Before* reaching the pins, it shall be declared a "gutter ball" and the pins, if any, knocked down by such ball shall not count and MUST be respotted, and/or should any ball rebound from the back cushions, the pins, if any, knocked down by such ball shall not count, but *Must* be respotted, all such balls to count as balls rolled. Pins knocked down by a pin, or pins, coming out of the pit after the delivery of a "gutter ball" shall not count, but *Must* be respotted.

Pins knocked down by a pin or pins rebounding from the side boards or back cushions shall count as pins down.

After a fairly delivered ball makes contact with the pins, it cannot thereafter be called a "gutter ball" and all pins knocked down after this contact shall count as pins down, except as outlined above.

Pins knocked down by a pin or pins coming in contact with the pin-boy shall count as pins down, except should the pin-boy deliberately throw a pin or pins on the lane, then the pins knocked down by such action must be respotted. Pins which are knocked down or displaced by any cause, except by a fairly delivered ball, shall in all cases be respotted, except as outlined above.

When an automatic pinsetting machine is activated by inadvertently pushing the wrong button or pedal, all pins then standing shall be respotted and play shall be resumed with no penalty whatsoever.

When a flying pin, or pins, hit the pin table of an automatic pinsetting machine and dislodges a pin, or pins, from the pin table, any pin or pins, then standing on the pin deck that may be knocked down by such dislodged pin or pins, shall be counted as pins down.

DEADWOOD

25. The deadwood must be removed from the lane and gutters after each ball is rolled, mechanically where automatic pinsetting machines are in use. Should any pins fall in removing the deadwood, such pins must be respotted.

When an automatic pinsetting machine is in use and the Number 7 pin and/or Number 10 pin is knocked down by pins being cleared by the gutter belt such pin and/or pins shall be regarded as down.

Any pin or pins knocked down by the Number 7 pin and/or Number 10 pin shall count as pins down.

Any pin or pins knocked down by a pin or pins, or falling AFTER the bowler steps on or pushes the pedal or button that actuates the deadwood removal mechanism of an automatic pinsetting machine shall not count as pins down, and any pin or pins knocked down or falling after such action on the part of the bowler shall be respotted. Any pin or pins knocked down by the action of the deadwood removal mechanism of the machine shall not count as pins down and shall be respotted. Any pin or pins knocked down or falling *After* the bowler steps on or pushes the pedal or button that actuates the re-set mechanism of the machine shall not count as pins down.

PIN SPOTTERS STICKING

26. If the pin spotters stick in manual pinsetting, whether on the first, second or third ball, all pins must be respotted and player must re-roll frame.

INTERFERENCE, WRONG LANE, ETC.

27. If any player rolls on the wrong lane or rolls out of turn, or is interfered with by a spectator or otherwise, or if any of the pins he is playing at are knocked down or disturbed in any way before his ball reaches them, or if his ball, after being fairly bowled should come in contact with any obstacle on the lane before reaching the pins, or if he bowled before all the pins were set up, the ball shall immediately be declared "dead" and the player shall roll again, after replacing the pins as they were before such ball was rolled.

However, if one or more bowlers on the other of the two lanes being used also rolls on the wrong lane, then no corrective action shall be taken and the game shall continue as though the lanes actually used were the proper lanes.

RETURNING PIN STANDING UP

28. Should a pin leave the lane, return, and stand up on the lane or should a pin be knocked down and stand up again without leaving the

lane, the same shall be declared as not down and the player must roll again at the pin, unless it should be on the third ball.

Provided, however, if a pin returns and stands up on any part of the lane outside of the area covered by the pin deck it shall be counted as a pin down.

PROTESTS

31. All protests as to interpretation of playing rules must be made to the captain of the opposing team, or to an official in charge of an event, whichever the case may be, before the bowler in question comes up to bowl the next ball, or in the case of the last box of a game, immediately after it shall have been bowled. Should the player, or players, be allowed to roll the next ball in regular order before the protest is made, no protest shall be given consideration. The foregoing paragraph shall not, however, prevent the filing of a protest as to the use of ineligible players, violation of a league or tournament rule, etc., or for any violation not immediately apparent as provided for in the foregoing paragraph.

When a legitimate protest of a game or match is made by a team, it must be presented to the governing body of the league, or the team captains, as a whole, if there be no governing body.

If the protest is proved valid, the governing body of the league, or the team Captains as a whole, shall rule and their decision will be final, *except*, where the protest pertains to the use of an ineligible bowler, in which case, the appropriate rule covering the use of an ineligible bowler shall govern.

OFFICIAL SCORER

32. In all sanctioned events or league games there shall be an official scorer, whose duty it shall be to keep a correct record of the game and at the conclusion thereof sign his or her name to the same. The captain of each team shall also sign the score sheet. It is the responsibility of each team Captain to observe that the addition of the scores during, and at the end of, a game, or games, is correct.

Official scorers and league statisticians must correct all mathematical errors discovered at any time, i.e.: individual game totals added incorrectly, wrong handicap used, handicap figured wrongly, etc.

It shall be the responsibility of the league secretary and/or league statistician or official scorer to verify the averages of all bowlers of the league throughout the season. If a bowler's average is found to put the

team over team average limit of the league the secretary and/or league statistician and/or official scorer shall immediately notify the Captain of the team involved. In traveling leagues the management of the establishment involved shall also be notified.

When the correction of a mathematical error by the official scorer or league statistician creates a tie game, such tie game shall be decided prior to the next regularly scheduled league match after the correction is made in accordance with the tie game rule regularly used in that league.

SCORING THE DUCKPIN GAME*

A game consists of 10 frames or boxes. Not more than three balls are allowed for each frame or box.

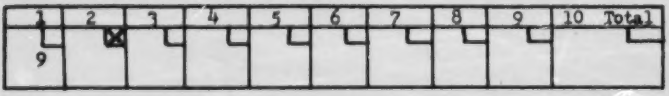
If all pins are knocked down by first ball it is called a strike. A strike is marked by an X.

If some pins remain standing after first ball has been thrown and are all knocked down with the second ball, it is called a spare. A spare is marked thus /.

After making a strike you are allowed 10 pins in that box plus pins made with the next two balls.

If pins remain standing after first and second balls have been thrown, third ball is rolled and you are allowed exact number of pins knocked down by three balls. This is called a flat frame or box.

Suppose in first box you get nine pins with three balls and in second box you get a strike, score sheet will be marked thus:



Counting 10 pins for the strike in the second box, you now have a total of 19 pins. However, no figure is written into second box yet because in addition to the 10 pins for the strike, you are allowed all pins knocked down with the next two balls. On next ball after strike, first ball in the third box, you knock down 5 pins and on second ball you knock down 4 pins. This gives you a total of 19 pins for second box, plus 9 you have in first box, and total to be marked down in the second box is 28. On third ball you get the remaining pin for a total of 10 in third box. Scoresheet will be marked thus:

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1	2	3	4	5	6	7	8	9	10	Total
9	28	38								

In fourth box you make a strike, and also in fifth box. Scoresheet will be marked thus:

1	2	3	4	5	6	7	8	9	10	Total
9	28	38								

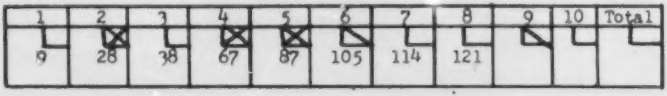
Remember, to 10 pins for strike in fourth box you add all pins knocked down by next two balls. On first ball, after strike in fourth box, you made strike in fifth box which gives you 10 additional pins, and on the second ball after strike in the fourth box, which is not first ball in sixth box, you knock down 9 pins. You now complete fourth box score which is 29 pins for that box — 10 pins for original strike, 10 pins for first ball after strike (first ball in the fifth box) and 9 pins for second ball after strike (first ball in the sixth box) making completed fourth box score 67. For your fifth box score you have already rolled one ball after making that strike (first ball in sixth box) knocking down 9 pins. You now roll the second ball of sixth box getting remaining pin for a spare. That gives you 10 pins to be added to original 10 pins for fifth box strike, a total of 20 pins for fifth box. Scoresheet will be marked thus:

1	2	3	4	5	6	7	8	9	10	Total
9	28	38	67	87						

In the seventh box you get 8 pins on first ball. This, added to 10 pins for spare in sixth box, gives you a total of 18 pins for this box, making total for sixth box 105. On second ball you do not hit any pins but get one pin with third ball for a total of 9 pins in box. Scoresheet will be marked thus:

1	2	3	4	5	6	7	8	9	10	Total
9	28	38	67	87	105	114				

In eighth box you get 7 pins with all three balls and in ninth box you get all pins with two balls for a spare. Scoresheet will be marked thus:



In the tenth box you make a strike. As you made a spare in the ninth box you add these 10 pins made on strike to the 10 pins for spare and ninth box score is 141. Your tenth box strike entitles you to two additional balls—to be rolled at once—(a spare in the tenth box entitles you to one additional ball). With these two balls you get a total of 9 pins. These are added to 10 pins made on strike and final score of game will be marked thus:

GOLF

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EDITORIAL COMMENT

It is with sincere pleasure that the members of the golf committee take this opportunity to thank the readers of the *Golf Guide* for the opportunity to serve you. The committee expresses appreciation to Helen Knierim, Pat Sherman and Geri Polvino whose encouragement and suggestions have permitted us to reach our goal. We also express gratitude to the authors of the articles contained in the *Guide*. They have given freely of their talents and time to share their ideas so that we all may benefit.

We invite you to react to the *Guide* content by suggesting possible article content, or by submitting your ideas for publication or by expressing an interest in serving on the golf committee. You may direct your interest to the new chairperson, Elizabeth Murphey, Box 1472, University of Georgia, Athens, GA 30602.

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* Current *Guide* material was prepared by the 1977-79 Committee; material for the 1981-83 *Guide* will be prepared by the 1979-81 Committee.

ESTABLISHING A CORRECT BEGINNING: GRIP-POSTURE-ALIGNMENT

MARGE BURNS

Marge Burns received her degree from Women's College, University of North Carolina at Greensboro. She has played competitive golf for 35 years. She is the current Teaching Division President of the Southeastern Section of the Ladies Professional Golf Association and was the LPGA teacher of the year in 1976.

Establishing the correct setup and address position is paramount to forming an efficient golf swing. Your grip, body posture and alignment will determine the ways in which you will be able to swing the golf club. For example, if a student is aligned improperly to the intended target, there is little chance the golfer will be able to swing the club in the direction of the target. Golf teachers in physical education classes who do not stress *grip-posture-alignment* will produce students with a *gap* in the proper execution of the golf swing.

Grip, posture and alignment may be taught individually or as a unit, but the students through repetition, should acquire a set *routine* which they repeat exactly on each and every swing. With an established setup routine, the teacher will find it much easier to teach the concepts and mechanics of motion and target projection.

There are many texts which present the mechanics of the setup position. I do not intend to discuss the methods of teaching any of these units, but rather to stress *key* words and thoughts which may help you in your presentation. (These keys are presented for a right-handed golfer.)

Grip

The proper hand position on the club is essential in producing a correct swing plane and clubface position at impact when striking the ball. In placing the hands on a golf club, beginning students tend to grip with the palms facing upward and to overgrip with a strong right hand. Both errors place the club in the palm of each hand rather than in the fingers. This may result in a pushing action by the hands, or may cause the hands to work independent of each other or result in a blocking out-of-hand action. Placing the club in the fingers allows the hands to work as a unit and release their force with the clubface square to the target.

Keys

Left hand grip

1. Let hand hang naturally down at your side—palm facing your thigh.
2. Reach forward with *upper* arm; do not manipulate hand.
3. Place lower part of pad of palm on *top* of the shaft; let thumb go to the right side of the shaft naturally.
4. The "V" made by thumb and forefinger will point toward right shoulder.
5. With arm and club outstretched in front of the body, students should be able to hold club with pad of palm and forefinger only. This is a good exercise for assuming a correct grip as well as developing left hand strength.

Right hand grip

1. Right shoulder should be hanging down and relaxed.
2. Face palm of hand toward target.
3. Fit lifeline of hand onto side of left thumb.
4. The middle two joints of the middle two fingers should be *under* the shaft.
5. The right thumb and forefinger barely touch.
6. The right hand is a *supporter*, not a grasper. Stress a *light* right hand grip.

Posture

Correct body posture allows the body to generate a turning (torque) force and permits the club to be swung through an arch which is on a line with the intended target. Correct posture at address is influenced by and exerts an influence on correct grip and alignment.

Keys

1. *Bow* from hips so there are *wrinkles* in your skirt or pants.
2. Knees are *slightly* flexed.
3. Weight is more toward balls of feet.
4. Arms *hang* under the *chin*.
5. Squatting and excessive knee flexion causes students to reach too far out with the arms and club and prevents the body from generating maximum rotational force.

Alignment

Alignment is essential for the development of a correct swing plane. Alignment of the student to the *target* relative to *clubface* and *body* is a

never-ending search. Many skilled players develop problems with poor alignment.

Keys:

1. Visualize a *railroad track* or *hallway*. The clubface is aligned on one side and the body is aligned on the other.
2. Remember two parallel lines do *not* come to a point. The club will always be aligned to the target and the body will be on a line parallel to, but left of, the target.
3. Shoulders should be parallel to the line of flight.
4. Pick a *short target* about six to eight inches in front of the ball and align the club to it. Take your body alignment from the clubface.

Resember, your swing will only be as correct as your grip, body posture and alignment allow it to be. Establish a set routine with grip, posture and alignment. Do not have a *gap* in your teaching!

TEACHING A RHYTHMICAL SWING TO BEGINNERS

NANCY A. SHAY

Nancy A. Shay is an assistant professor of physical education at Colorado State University, Fort Collins. She has used the "rhythmical swing" approach with much success and has shared her teaching approach with many other golf teachers.

Teaching the basic fundamental swing to beginning golfers can be a complex procedure when the instructor emphasizes swing form analysis. A simpler method is the rhythmical approach which assures the beginner early success in building a natural swing. This step-by-step procedure allows for a certain amount of experimentation and discovery at each practice session; yet the details of a good golf swing are acquired naturally and rapidly. Although styles of teaching vary, basic golf skills remain the same. What is most important is that a continuous rhythmical swing and left arm strength be developed so that the details of a good golf swing can be acquired as naturally as possible.

Step I: Introduction to the Swing

During the first step, the golfer assumes a comfortable square stance with feet approximately shoulder width apart and bows slightly forward from the waist. Holding the grip of the club between thumb and forefinger of the left hand (right-handed golfer) and at arm's distance in front of the body, the golfer starts the club moving in a pendular motion. The golfer should become aware of the weight of the clubhead in motion as this becomes the basis for establishing the rhythm of the swing pattern.

Step II: Knee-To-Knee Swing

Using the left arm, the powerful guiding arm of the swing pattern, the left hand is moved to the proper left hand grip position. The golfer increases the pendular motion so that the clubhead now swings to knee height on both the forward swing and backswing. The learner is reminded to keep the left wrist and arm straight while the left shoulder

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Photographs in this article were taken by Darby Hartman, recreation director, Howard, Colorado.

Figure 1. The club is set in motion to feel the weight of the clubhead throughout the continuous swing motion.

Figure 2. The club is continually swung from the knee to knee level allowing proper form of legs, knees and shoulders to be developed.

begins to move under the chin on the backswing. A continuous swinging motion from knee to knee is practiced until the beginner can repeatedly brush the hitting surface in a straight line. The weight of the clubhead in motion is evident throughout this step.

Step III: Waist-To-Waist Swing

The height of the pendular swing is increased higher to waist level as the clubhead is continuously swung from waist level on the backswing and to waist level on the forward swing. At this point of the swing progression, a natural golf form is observed. The initiation of lateral hip rotation is easily recognized in the backswing as the clubhead is drawn back and up to waist height. This action causes a coordinated result of the left knee turning slightly inwardly and the hip slightly rotating within its dimensions. During the continuous swing session, the golfer will note that the weight of the left foot is on the inside and the right leg has begun to straighten to support the shifting body weight. Swing practice continues until the clubhead repeatedly travels in the proper swing channel and brushes the hitting surface.

Figure 3. Increasing the level of swing from waist-to-waist on the back and forward swings, the golfer builds a smooth transitional weight shift.

Step IV: Shoulder-To-Shoulder Swing

The swing level is increased on the backswing until the clubhead reaches the top of the shoulder area and to that level on the forward swing. As the continuous swing motion from shoulder to shoulder is practiced with the left arm, the left wrist begins to cock or break naturally as it passes the waist level on the backswing and is fully cocked by the time the shoulder level is reached. The balance effect of the feet will include a weight shift on the backswing from the inside of the left foot to the inside of the right foot of the supporting leg. As the clubhead passes the waist level on the downswing, the wrist will begin to uncock. By the time the clubhead passes the body's midline and the beginning of the upward swing, the wrist will have naturally uncocked allowing the straight left arm to continue on the proper swing path to the follow-through plane.

Figure 4. Practicing the shoulder-to-shoulder level swing increases the left arm strength and allows the beginner to feel the wrist break naturally near the top of the backswing.

Step V: Final Shoulder-To-Shoulder Swing

Many of the fine points of form have already been easily learned by the golfer, and the instructor may then progress to the final steps of building a rhythmical swing by including the placement of the right arm and hand. The golfer repeats the shoulder level swing and simply reaches up and touches the grip with the right hand and places it closely on the grip next to the left hand. This action allows a proper arm position for the powerful downswing. During the continuous swing practice, the right hand grasp may be quickly released while the left arm continues the forward motion. The right hand and arm may be included on the downward swing but released as the clubhead passes the imaginary point of ball impact. This action assures that the wrists uncock naturally as the straight left arm completes the upward swing. The weight of the clubhead should remain evident to the golfer as the two-armed continuous swing action follows the naturally formed arc and constant plane on the backswing, downswing and follow-through.

Figure 5. During the final stages of continuous shoulder-to-shoulder swings, the golfer places the right hand to the grip and assures proper left and right arm positions for the full swing.

Within a very short practice time at each level of swing, a natural rhythmical tempo will be acquired with the result of a flowing and smooth full swing motion that is uncommon to many beginning golfers. By teaching this simplified swing movement, correction time is greatly reduced. The beginning golfer has learned the basic swing movement before becoming overly "self-critical" of the numerous movement principles and analytical points that often confuse the beginner. Progression and practice may then be concentrated on single swings without the ball, "wiffle" ball hitting, grip positions, golf ball hitting and the remaining contents of a beginning golf unit.

USE YOUR CLUB TO HELP YOU TEACH

CAROL ISAACS

Carol Isaacs, women's golf coach at the University of Minnesota in Minneapolis, has coached there three years. She graduated from the University in 1972 with a B.S. degree in physical education. She has taught golf for six years and has been master golf teacher at the NAGWS workshop held at Carleton College, Northfield, Minnesota for the past two years.

It has been my experience that many faults in the golf swing can be traced to basic mistakes in the setup and general posture of the golfer.

Too many golfers have in their minds the age-old instruction: "It's like sitting on a stool"—"Feel like you're sitting down." These well-meaning hints, probably offered to counteract the stiff knee habit, have put many people into the wrong beginning position. A golfer, when addressing the ball, should bend forward from the *hips* with the knees slightly holding in, rather than holding the hips under and forward.

Figure 1. Golfer in "hips under" "sitting down" position.

Figure 2. Golfer in "bent forward from hips" position.

Many times two things can happen from the "hips under" position: (1) the right side comes around on the downswing rather than following in behind the left side and a cut-slice shot results, or (2) the upper body falls forward toward the ball on the backswing and this dip can produce a "fat" shot on the downswing.

Basic alignment to the target seems to be a problem for all golfers at various times. As a teacher or coach, you can see faulty alignment when the golfer cannot. A very helpful tool for coaching or teaching is a golf club. A quick way to demonstrate to the golfer is to lay one club at the golfer's toes and another one behind the ball, perpendicular to the leading edge of the sole of the golfer's club as she addresses the ball. These clubs should be parallel to each other, the club behind the ball should point to the target and the club at the golfer's toes should point to the left of the target. The shoulders and hips should not be neglected in observing the golfer's posture at address. It is easy to step in and hold a club in front of first the shoulders and then the hips to demonstrate to the golfer whether the alignment is correct.

A golf club can also be used to detect errors in the swing motion. The teacher or coach stands to the golfer's right side facing the target so that the backswing will come directly toward her. She holds her club

Figure 3. Hips "open" to target at address.

Figure 4. Hips "square" to target at address.

Figure 5. Shoulders "open" to target at address.

Figure 6. Shoulders "square" to target at address.

at the same angle as the spine of the golfer and "sights" along the club during the whole backswing, downswing and follow-through.

From this position, it is easy to see if the golfer drops forward on the backswing or if she maintains the same angle throughout the swing.

Figure 7. Coach aligns club along back of golfer.

Figure 8. Golfer is "dropped forward" at top of backswing.

Figure 9. Golfer in correct position at top of backswing.

Figure 10. Golfer in correct position on follow-through.

Using the club in this manner will help you to see the problem, but getting the golfer to understand and correct the problem is another matter. One method is to face the golfer and extend your arm and club with the grip toward the golfer's chest while the golfer swings. Any dropping forward of the body can be instantly felt by the golfer. Telling the *golfer* to "pull in your stomach" or "pull in your diaphragm" sometimes can help *her* to "hold up." Emphasizing a turn away from the ball can also focus attention on a positive action rather than on the negative "don't dip!"

Another common problem golfers have is moving the head and/or body forward on the downswing. To determine if this is taking place, stand facing the golfer and "sight" along the club with the golfer's head at the top of the club and the ball near the bottom of the shaft. On the backswing, the head and left knee are behind the ball. During the swing to the ball, the head should not pass the line of the club. If the left knee does not move left, the weight shift is not taking place and the golfer will lose power.

Figure 11. Head behind the ball, and left knee has turned behind the ball.

Figure 12. Head still behind the ball on the follow-through.

Another way to use the golf club is to align it with the golfer's club at address and extend it up beyond the shoulder height. As the golfer begins the backswing, the hands should stay right on the line and her club should follow the coach's club shaft. In most good players, the position at the top of the backswing will generally be above the extension of the coach's club. In the downswing, the golfer's club will follow the same plane as the coach's club. Any deviation from the "one-plane" swing is easy to see. Golfers can also help one another using this method.

All of these techniques can be shown to other golfers on the team or in a class so that they can help one another. This trains them to look at many basic fundamentals in the setup position, rather than concentrating so much on watching the ball. These methods can also increase the golfer's understanding of the swing.

Figure 13. Club aligned with golfer's club.

Figure 14. Golfer has brought her club "inside" the line of the backswing.

Figure 15. Golfer's club is right on line of coach's club.

Figure 16. Golfer's club is right on line of coach's club.

Figure 17. Golfer in correct position at top of backswing.

Figure 18. Golfer in correct position on follow-through.

GOLF CROSSWORD PUZZLE

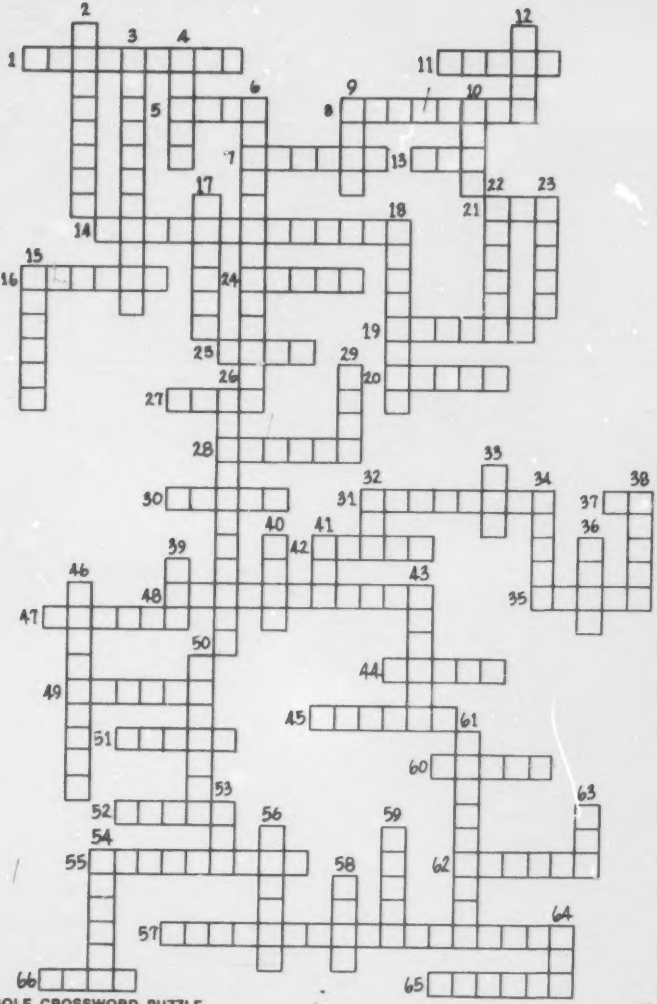
DIANE MARIE CARRILLO

Diane Marie Carrillo received her B.S. and M.Ed. degrees from the University of Arizona, Tucson. She played competitive golf during high school and college. She is presently teaching physical education and math at Wakefield Junior High School where she has coached the girls' volleyball team for the past nine years. Diane is a member of the Junior High Athletic Committee and on the Superintendent's Advisory Committee for Physical Education.

This crossword puzzle was designed for the enjoyment of the reader. Some questions are designed to acquaint the reader with the historical beginnings of golf, others will introduce you to outstanding professional golfers, while still others will assist you in acquiring golf's unique use of common words heard in the English language. For instance, did you know a golf club only has one toe; that a whiff is not something you smell, and that the birdie in golf does not fly? If you complete the puzzle without help from anyone else, you have parred the course. If you whiff a question, ask your caddie to help. If you are stymied, go back to the practice tee.

ACROSS

1. Famous golf course in Scotland built in 1552.
5. The upper part of golf club shaft which is held in the hands.
7. A system of scoring.
8. A match in which two players compete against two others.
11. A fringe of grass around the green.
13. Unplayed holes after a match has been won.
14. The continuing swing of the club after the ball is hit.
16. A large, depressed sandtrap and mounds of earth around the trap.
19. Any bunker, water, ditch, sand, roads, tracks and paths.
20. Putting surface in which the cup is situated.
21. A poorly hit shot.
24. A ball hit so it curves to the right.
25. To cause the ball to curve to the left of the original line of flight.
27. Striking surface of the clubhead.
28. When an opponent's ball lies in the line of a player's putt in match play.



GOLF CROSSWORD PUZZLE

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ACROSS (Continued)

30. To hit the ball with the heel of the clubhead where it joins the shaft.
31. A shot to the green.
35. Any part of the course within bounds other than the fairway.
37. When a player or players is ahead of opponent or opponents.
42. Attempting to hit the ball too hard or too far.
44. "SLAMMING" Sam.
45. Club used on a green.
47. A person who carries a player's golf bag and clubs.
48. Any ground on which play is prohibited.
49. A poor player with a poor swing.
51. The first shot with a wood club, usually made from a tee.
52. Turf cut with the clubhead when swinging at the ball.
55. Competition in which results are determined by the total number of strokes.
57. Taking a stance and grounding club.
60. Missing the ball when striking at it.
62. Any point in the match where the match is all even.
65. The whole area on which golf play is permitted.
66. Winner of the first United States Women's Open.

DOWN

2. Strokes given to equalize playing ability.
3. Two strokes over par.
4. Two strokes under par.
6. One stroke added to the score of a side under certain rules.
9. A pennant carrying the number of the hole.
10. A tournament for both amateurs and professionals.
12. Warning cry to persons ahead who might be hit by the ball.
15. One stroke less than par on a hole.
17. When a player or side is as many holes up on its opponent as there are holes remaining to be played.
18. Ball has traveled correct distance equal to reaching hole.
22. A very high handicap golfer.
23. One stroke over par on a hole.
26. Any temporary accumulation of water which is not recognized as a regular hazard.
29. Part of clubhead which rests on the ground.
32. A hole scored in one stroke.

DOWN (Continued)

33. A standard score for a hole.
34. The privilege of playing first off the tee.
36. The implement used to hit the golf ball.
38. To loft the ball into the air.
39. The part of the clubhead farthest from where it joins the shaft.
40. Angle at which clubface is set from vertical. Used to lift ball into the air.
41. Golf teacher.
43. The position of the feet before hitting the ball.
46. Competition in which results are determined by the number of holes won.
50. SUPER MEX.
53. To strike the ball above its center.
54. An object determining forward limits of teeing ground.
56. Last name of two famous golf pros; one is a male and one a female.
58. A short stroke made with the forearms and wrists, with little body movement.
59. Movements involved in making a golf stroke.
61. Three players in a group.
63. Wooden peg.
64. The position of the ball on the ground.

ANSWERS

Across

1. St. Andrews
5. Grip
7. Nassau
8. Foursome
11. Apron
13. Bye
14. Follow-through
16. Bunker
19. Hazard
20. Green
21. Dub
24. Slice
25. Hook
27. Face

Down

2. Handicap
3. Double Bogey
4. Eagle
6. Penalty Stroke
9. Flag
10. Open
12. Fore
15. Birdie
17. Dormie
18. Hole High
22. Duffer
23. Bogey
26. Casual Water
29. Sole

Across

28. Stymie
30. Shank
31. Approach
35. Rough
37. Up
42. Press
44. Snead
45. Putter
47. Caddie
48. Out of Bounds
49. Hacker
51. Drive
52. Divot
55. Medal Play
57. Addressing the Ball
60. Whiff
62. Square
65. Course
66. Berg

Down

32. Ace
33. Par
34. Honor
36. Club
38. Pitch
39. Toe
40. Loft
41. Pro
43. Stance
46. Match Play
50. Trevino
53. Top
54. Marker
56. Palmer
58. Chip
59. Swing
61. Threesome
63. Tee
64. Lie

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THE COLLEGE SCHOLARSHIP SCENE

MARGARET CUMMINS

Margaret Cummins received her B.S. degree from the University of Arizona, Tucson, and her M.S. degree from Smith College, Northampton, Massachusetts. She played competitive golf during high school and college, sponsors an annual intercollegiate golf tournament, and has coached the Indiana University women's golf team for the past 10 years. She is an area consultant for the National Golf Foundation and Golf Guide *Chairperson.*

Title IX has had a sweeping effect on women's collegiate golf teams. Schools which four years ago had difficulty convincing students to play golf are now turning golfers away. Other schools which did not have golf teams are able to build an entire team within a couple of years. College coaches are being bombarded with letters from prospective golfers, their parents and their high school coaches. Many college coaches are bombarding the National Junior golf tournaments assessing the golfers' abilities and hoping to meet potential team members.

Having been both a participant and an observer in the recruiting process, this coach has become increasingly aware of the need for high school golfers to have some knowledge and guidelines when looking for golf scholarships. It is not uncommon to see athletes who did not get a scholarship because they did not know where or how to look for them. It is also not uncommon to find golfers who did get scholarships but are not in the college tournaments because they do not play well enough to make the travelling team.

Guidelines for Seeking a Golf Scholarship

1. *Start Early.* The junior year in high school is not too soon to begin looking for a college to attend. It gives you time to contact the coach and investigate the offerings of a number of colleges. It also gives prospective coaches the impression you are seriously interested in both an education and in playing golf.
2. *Select colleges on the basis of their educational offerings and their suitability to your background.* Know what your educational goals are and select colleges which can fulfill those goals. Select a college where you think you will be happy. Not everyone appreciates a large campus, nor is everyone suited to a small one. Coaches look for students who have educational goals and aspirations. All athletes must

maintain a standard of academic success and work toward a degree. Without educational goals, it is difficult to progress toward a degree or to pass satisfactorily your course work. Playing on a college team requires a great deal of your time. Strive to maintain higher than average high school grades.

3. *Find out where your abilities stand relative to the golfers already on the team.* The AIAW rules currently allow each school to have a maximum of eight scholarship golfers on their team during any one year. In the national caliber collegiate competition, the teams usually are allowed to enter five players in the tournament. This means that a school with eight scholarship golfers will be leaving three scholarship golfers at home each time they compete. If your abilities are closely matched with those of other golfers on the team, you can compete for one of the five traveling team positions. But if your abilities are below the level of the other team members you probably will not get to compete.
4. *Find out what kind of competitive opportunities the team offers.* Is the team nationally ranked? Will the school send you or your team to national tournaments if you qualify to go? How did the team rank in the regional tournament, in the state? What is the team's competitive schedule?
5. *Find out the qualifications and capabilities of the coach.* Is the coach concerned with your educational aspirations? Can the coach help you advance in your golf abilities? Can you respect and work with the coach?
6. *Does the school support women's athletics?* Is there a golf course easily accessible to team members? Are there provisions for practicing, chipping, pitching, putting and long shots? Does the school pay all golf-related fees? Does it provide lodging, meals and adequate transportation for away tournaments? Does it have an established competitive schedule? Does the school have a maximum absence from classes policy? Will the teachers permit you to be absent without undue penalty?
7. *Know whom to contact at the school.* If possible, find out the name of the coach to whom you are writing because this gives the coach the impression you are interested in that particular school and that team. If you cannot find the coach's name, address your letter to Women's Golf Coach, Athletics and then the school's name, city and state.
8. *Save time by including your complete resume with your initial contact to a school.* Coaches will respond to your request sooner if they have some means of judging your potential suitability for their program.

In your resume include:

1) A statement indicating why you are interested in that school.
2) Your high school grade point average and educational goals.
3) Your past two to three years of tournament golf experience. Include 18-hole *stroke scores*, the names of the golf courses and the course yardage if possible. Actual scores received are more beneficial than names of people you defeated or standings of your high school team.
4) Copies of the newspaper clippings reporting your achievements.
5) And if possible, a recommendation from someone who has worked with you, who can comment on your coachability.

But most important, be completely honest! Include your best score as well as your worst. It will not take the coach long to discover your real abilities. Don't overestimate or underestimate your ability.

9. *Don't expect the college coach to make the initial contact with you.* Currently, it is against AIAW rules for a college coach or any representative to make an initial contact with you through any means other than by telephone or by writing a letter. (Have your high school coach keep abreast of AIAW rules for any changes in the recruiting procedures.) For the most part you will be expected to make the initial contact. Coaches may then respond in any number of ways. Some coaches will ask you for further information; other coaches will ask you to visit their campus (at your expense, current AIAW rule). At some institutions scholarships are awarded to students who first attend the school and try out for the team. Before going to a school to *audition*, be sure to check your own state's rules for eligibility on high school teams.

Many colleges now have women's golf teams, and most of them are awarding athletic scholarships. Do inquire if you are interested. There are schools looking for golfers who have a three handicap or less; and there are schools looking for golfers who consistently break 90. If you are dedicated, interested and willing to give 100 percent effort, you have a good chance of finding a school suitable for meeting your goals.

GOLF GOES TO TEAM PLAY

GARY MERIDETH

Gary Merideth is a member of the Professional Golf Association. He is the Professional at the Furman University Golf Course, Greenville, South Carolina, and coaches the Furman University men's golf team. His women's team won the 1976 AIAW Golf Championship.

For many years, golf has been viewed as an individual sport. Today, because of the influx of high school and college play, its image has changed. Although the individual is still very important in golf, team play has become the chief objective for all schools. Team play has enhanced golf because it enables players to work together and win or lose together. Team play has changed the format of tournaments and has resulted in several potential rule changes that pertain to advice, disqualifications and team scoring.

One of the primary changes in tournament format is the shift of emphasis to team pairings. This revolutionary idea has been a major step in generating good team play and interest for spectators and golfers alike. Basically, team pairings consist of the team playing in the position according to how they rank in the tournament. Most college tournaments have gone to team pairings for the 2nd, 3rd and 4th rounds of the tournament. After the teams have played an opening round and established their positions, they are assigned to play teams that are close to them in the standings.

For example, if you are playing threesomes, the #1, #2 and #3 teams would be paired together playing the #5 players together, the #4 players together, and so forth. If you finish 9th after the first day of play, you would be playing with the team that finished 8th and 7th if playing in threesomes. Each day you would determine your new standings by how you played on an aggregate basis. In other words, if after two days, you move from 9th place to 5th, you would be playing the teams that were in the 6th and 4th positions.

One of the best advantages to this type of pairing is that it puts back into the game head-on-head match play type of competition. If, for instance, your team is in 2nd place, 7 shots out of first place, you could give each player the goal of beating the players from the #1 team by 2 shots. This makes for a very interesting side match as well as team competition.

An added feature to team pairings is the sample "starting sheet" pre-

sented below. The advantage of the starting sheet is that it can be made up months in advance and put into the information package. All a coach needs to do then at the end of each day's play is to determine his or her team position in the tournament and the positions of each of his/her players. This is determined by the player's score. For example, if the player comes into the tournament playing in the #3 position on the team and after two days the golfer's aggregate score is low on the team, that golfer will play the #1 position on the 3rd day.

STARTING TIMES

NOTE: Tee Off on no. 1 ONLY

8:00	27th Team, 5th low	26th Team, 5th low	25th Team, 5th low
8:07	27th Team, 4th low	26th Team, 4th low	25th Team, 4th low
8:14	27th Team, 3rd low	26th Team, 3rd low	25th Team, 3rd low
8:21	27th Team, 2nd low	26th Team, 2nd low	25th Team, 2nd low
8:28	27th Team, low	26th Team, low	25th Team, low
8:35	24th Team, 5th low	23rd Team, 5th low	22nd Team, 5th low
8:42	24th Team, 4th low	23rd Team, 4th low	22nd Team, 4th low
8:49	24th Team, 3rd low	23rd Team, 3rd low	22nd Team, 3rd low
8:56	24th Team, 2nd low	23rd Team, 2nd low	22nd Team, 2nd low
9:03	24th Team, low	23rd Team, low	22nd Team, low
9:10	21st Team, 5th low	20th Team, 5th low	19th Team, 5th low
9:17	21st Team, 4th low	20th Team, 4th low	19th Team, 4th low
9:24	21st Team, 3rd low	20th Team, 3rd low	19th Team, 3rd low
9:31	21st Team, 2nd low	20th Team, 2nd low	19th Team, 2nd low
9:38	21st Team, low	20th Team, low	19th Team, low
9:45	18th Team, 5th low	17th Team, 5th low	16th Team, 5th low
9:52	18th Team, 4th low	17th Team, 4th low	16th Team, 4th low
9:59	18th Team, 3rd low	17th Team, 3rd low	16th Team, 3rd low
10:06	18th Team, 2nd low	17th Team, 2nd low	16th Team, 2nd low
10:13	18th Team, low	17th Team, low	16th Team, low

10:20	15th Team, 5th low	14th Team, 5th low	13th Team, 5th low
10:27	15th Team, 4th low	14th Team, 4th low	13th Team, 4th low
10:34	15th Team, 3rd low	14th Team, 3rd low	13th Team, 3rd low
10:41	15th Team, 2nd low	14th Team, 2nd low	13th Team, 2nd low
10:48	15th Team, low	14th Team, low	13th Team, low
10:55	12th Team, 5th low	11th Team, 5th low	10th Team, 5th low
11:02	12th Team, 4th low	11th Team, 4th low	10th Team, 4th low
11:09	12th Team, 3rd low	11th Team, 3rd low	10th Team, 3rd low
11:16	12th Team, 2nd low	11th Team, 2nd low	10th Team, 2nd low
11:23	12th Team, low	11th Team, low	10th Team, low
11:30	9th Team, 5th low	8th Team, 5th low	7th Team, 5th low
11:37	9th Team, 4th low	8th Team, 4th low	7th Team, 4th low
11:44	9th Team, 3rd low	8th Team, 3rd low	7th Team, 3rd low
11:51	9th Team, 2nd low	8th Team, 2nd low	7th Team, 2nd low
11:58	9th Team, low	8th Team, low	7th Team, low
12:05	6th Team, 5th low	5th Team, 5th low	4th Team, 5th low
12:12	6th Team, 4th low	5th Team, 4th low	4th Team, 4th low
12:19	6th Team, 3rd low	5th Team, 3rd low	4th Team, 3rd low
12:26	6th Team, 2nd low	5th Team, 2nd low	4th Team, 2nd low
12:33	6th Team, low	5th Team, low	4th Team, low
12:40	3rd Team, 5th low	2nd Team, 5th low	1st Team, 5th low
12:47	3rd Team, 4th low	2nd Team, 4th low	1st Team, 4th low
12:54	3rd Team, 3rd low	2nd Team, 3rd low	1st Team, 3rd low
1:01	3rd Team, 2nd low	2nd Team, 2nd low	1st Team, 2nd low
1:08	3rd Team, low	2nd Team, low	1st Team, low

The method for determining the first day starting times has generally been left to tournament directors. Many variations have been used. Some directors rank the teams prior to coming and use team pairings for the first day. Others rank the individuals prior to the tournament and pair the best players together, then the next best, and so forth. Still others might use a mixture of all players, good and bad, so that less skilled players have a chance to play with more skilled golfers and vice versa.

The greatest objection to team pairings is that there are times when a good individual playing on a poor team will not be able to play with the leaders of the tournament. Of course, the feeling here is that team play is more important than the individual. For many coaches, team pairings constitute one of the best ideas for developing team play in golf. It is rare to find a player more interested in winning as an individual than in having the team win. I am sure many other changes will be made in the future because of this interest in team competition.

DISTANCE IS A FACTOR

LEA LARSON

Lea Larson received her B.S.E. and M.S.E. degrees from the University of Central Arkansas and her Ed.D. from Oklahoma State University, Stillwater. For the last six years she has been an associate professor in the health and physical education department and women's golf coach at Austin Peay State University, Clarksville, Tennessee.

It is generally conceded that golf is a target game. Much has been written about the importance of hitting the ball as straight as possible toward the target. The second phase of the game, distance, does not receive sufficient attention. This article will consider two fundamentals concerning distance: how to gauge distances and determining the capacity for each club. The author believes that beginner-intermediate golfers encounter most of their difficulties in these two areas.

The first step in determining distance is to ascertain the distance each person can generate with each pace. Originally we tried to teach the students to walk with a pace of one yard. The first short student who enrolled destroyed that concept. Consequently, it was determined that instead of varying the student's natural pace, we would determine how many of her steps were equal to 10 yards. This problem can be solved by assembling at the football field and instructing each student to work with a partner to determine her consistent pace rate through 10 yards. As one student paces and counts aloud, the other writes down the figure called out as her partner crosses the 10-yard lines. After five or six figures are given, they reverse roles. When both students compile a complete set of figures, they analyze them and should be able to come up with a starting number of paces for 10 yards. To check this, each student then begins at a yardage line and paces double that figure. If the student stops on the fourth yardage line she knows she is correct as she has paced 20 yards. The student then tries out her number for 50 or 60 yards.

Once the student is satisfied and is familiar with her pace, she and a partner begin work on another situation. This time the student is blindfolded and told to walk a specific distance. Her partner is responsible for keeping her on a straight line. Both students should be able to function effectively blindfolded as well as with their eyes open. Once the student has a reasonable idea of her pace, she takes this knowledge to the golf course.

Many of the courses we play have permanent yardage markers; however, many yardage markers vary in distance. Most of the yardage markers on courses are measured to the centers of the greens. This knowledge will usually put you within two-putt range but seldom provide one-putt opportunities.

You can follow some specific steps in determining more precisely the yardage for each shot. First, pace the distance from the marker to the front edge of the green. Second, pace the distance from the front edge to the back edge of the green. Then, you can talk in terms of dividing the green with four horizontal lines equal distance apart. If the determined distance from front to back is 40 yards, each segment contains 8 yards; if the pin is in the fourth segment (D) you know it is 32 yards to the pin from the front of the green. This is added to the distance from the marker to the front of the green and the total yardage is known. This knowledge is then coupled with the knowledge concerning how far you hit each club and you are capable of making birdies instead of pars.

Our players keep a notebook from the first day they come to practice until they graduate. One of the first notes is the distance they strike each club. This figure is determined in the following manner. A minimum of 20 balls are struck with a specific club. The wedge is usually hit first and then a four or five iron. By hitting two clubs with a distinct yardage difference, you can determine the distance for two clubs at the same time. Next you should walk off the distance to the middle of the first accumulation of balls, make a notation of that distance for the wedge and then proceed to the middle of the second accumulation. Here a second notation of the distance is made for the four iron. It is felt that the intermediate golfer should have a specific yardage to work with, therefore we disregard the "super" or "missed" shot and make our notation at the middle of the balls. Advanced players are also aware of their range, i.e., they really could put the ball seven yards farther with the wedge. This knowledge prevents the player from overshooting the green and going into a hazard. However, more strokes are lost in hazards in front of the green than behind the green.

After bringing the balls back, you hit your next least lofted clubs, step them off and record them. A couple of words of caution—many times range balls have a compression much different from those actually used in play. It is obvious that such a situation would not be realistic. In addition, the player should hit the balls from lies similar to those that would be in the fairway. Students should hit a few balls from "fly" lies so that they will see the effect of the grass being between the ball and the clubface. As you proceed through all of the clubs, the distance for each particular club and each variable situation should be noted.

There are no shortcuts to teaching or coaching golf. The previously outlined techniques take time. But it would behoove every teacher and golf coach to consider Labron Harris' admonition, "Adequate preparation is the key to winning golf matches." Even though golf is a target game, the player who is confident of her knowledge of how far she hits the ball and how far she is from the target has prepared herself for one of the major variables in the game.

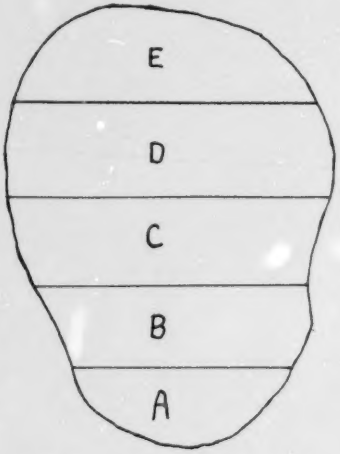

Figure 1. Putting green divided into five segments.

HELP FOR THE GOLF COACH—ANALYZE THE GOLF SWING USING BIOMECHANICS

SARAH L. SMITH

Sarah L. Smith received the A.B. degree from Duke University, Durham, North Carolina, and the M.S. degree from Indiana University, Bloomington. Her professional experiences include teaching at both the secondary and college levels. She completed the requirements for the Ph.D. degree in human performance at Indiana University in August 1978. Her areas of emphasis are biomechanics and measurement.

For the coach striving to help collegiate golfers improve their skills, it may be necessary to use resources other than human observation before higher performance levels can be attained. As a specialty area within physical education, biomechanics provides a means for objectively studying the many facets of the golf swing and for obtaining precise and accurate *quantitative* information about the mechanical aspects of this type of motion.

A biomechanical analysis of each individual golf team member provides the coach with answers to the following questions:

1. What is the velocity of the clubhead at impact?
2. What is the acceleration of the clubhead at impact?
3. What is the time of execution for each phase of the swing—backswing, downswing and follow-through?
4. At what point in the swing does the weight shift occur?
5. Is the timing of the weight shift consistent for all clubs?
6. How much force is exerted through the target and non-target foot during the swing; how and when do these forces change; and are the changes consistent for all clubs?
7. In the downswing, how does lateral weight-shift change compare with rotational or torque force change during the same time interval?
8. What is the angle of trajectory and what is the distance of the flight phase?
9. What is the body position at impact?

To answer these questions, the following procedure has been used.

In a laboratory setting, a high speed camera is used to film each individual golfer while executing the swing using a designated club and hitting a regulation golf ball. Prior to executing the swing, the golfer assumes a position in which each foot is placed on one of two

small force plates, both of which are securely bolted to a large force platform. Distance between the two force plates should be adjustable to accommodate any differences in the widths of the stance assumed by each golfer. Figure 1 shows a golfer in this position being filmed by a camera located at a 90° angle to the intended line of flight of the ball.

Camera speed for filming the golf swings of highly skilled performers should be set at a minimum rate of 300 frames per second (fps). High film speed is necessary to help eliminate blurring of the clubhead and shaft during the swing and to show the exact moment of impact.

From the impulses received from the force platform, recordings are made which indicate the magnitude of the forces exerted through the golfer's feet in three directions—(1) forward and backward—X, (2) lateral or side-to-side—Y, and (3) vertical or downward—Z. A totational or moment (M) force is also recorded. Force readings from the two force plates (left and right) show the vertical forces exerted through each foot during the execution of the swing. Six force measures (X,Y,Z,M,L,R) are recorded against a time base during the filming of each swing.

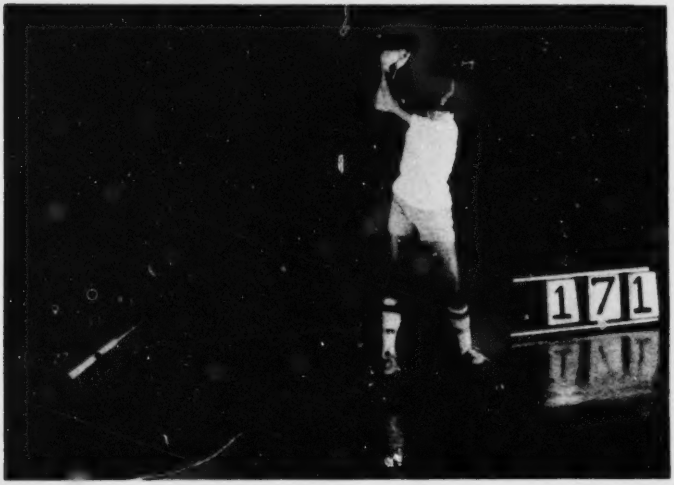

Figure 1. Golfer being filmed.

Through cinematographical techniques, temporal, displacement, velocity and acceleration data can be obtained for each film sequence. By matching the time base of the film with that of the force recordings, it is possible to obtain a biomechanical "profile" of a golfer using a specified club. Thus the coach can know in quantitative terms the time, velocity, acceleration, position and amount of force exerted by the golfer at each instance during the swing.

In order to provide the coach with this quantitative information, the biomechanical researcher routinely utilizes a computer. The following examples are derived from a computer program and illustrate how body position and club displacement can be determined and displayed graphically for each golfer.

Figure 2 shows a stick figure plot of a collegiate golfer with a 6 handicap. This plot represents the positioning of the body parts as seen in the impact frame of the film sequence. The coach should immediately note the slight flexion in the left wrist and elbow and the pronounced flexion in the right knee.

In Figure 3, the plot describes the path made by the clubhead during selected frames of the film; the subject was using a 7 iron. These selected frames of the downswing phase are in the following sequential order: (1) club shaft parallel to the ground, (2) club shaft at a 45° angle to position 1, (3) clubhead off non-target foot, (4) 2 frames before impact, (5) 1 frame before impact, (6) impact and (7) 1 frame following impact. The time interval for this action was .0525 seconds. If more frames had been selected for analysis, the path of the clubhead in Figure 3 would be described by a smooth curved line.

From this displacement curve, the average velocity between two positions can be determined. Since this sequence was filmed at 300 fps., a time interval of 1/300 or .0033 seconds exists between two successive frames. Thus, the average velocity between positions 5 and 6 is determined to be 87.31 feet per second (128 mph). Because this time interval is of short duration, the average velocity can be equated with instantaneous velocity at impact.

In terms of the force measures, the coach is interested in both the magnitude and direction of a particular force as well as the time period over which the force or moment indicate the cessation of the clockwise motion of the backswing and the beginning of the counterclockwise motion of the downswing. Likewise, directional changes in the lateral or Y force tracing denote the timing of the weight shift from both feet to the non-target foot during the backswing phase and from the non-target foot to the target foot during the downswing phase. Figure 4 (page 110) illustrates the magnitude and changes in the direction of the

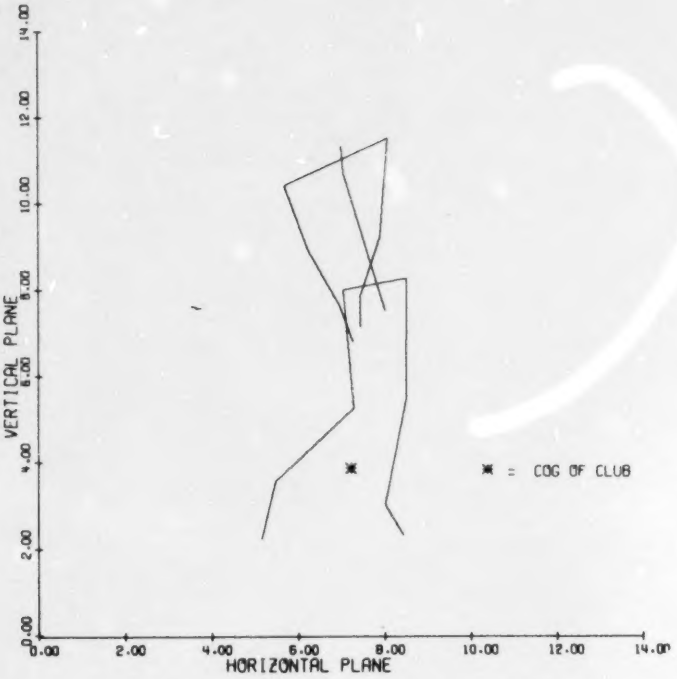

Figure 2. Stick figure of golfer at impact using a 7 iron.

rotational force using the instant of impact as the reference point of the time scale.

These three examples illustrate the types of mechanical flaws or strengths that can be determined by a biomechanical analysis. If the golfer's body position at impact is not consistent for all swings with the same club, then consistent ball direction, flight and distance will not be achieved. If clubhead velocity is not at its maximum at con-

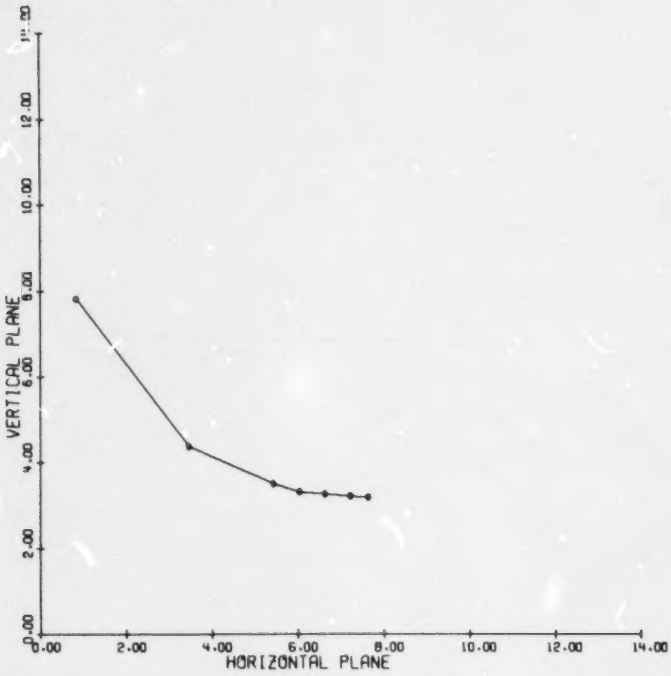

Figure 3. Plot of the displacement path described by the clubhead.

tact, then maximum distance will not be gained. If rotational and lateral force directional changes are not occurring in a consistent timing sequence, then the results of the contacted ball will vary.

Through this kind of cooperative approach, the coach obtains information from the biomechanics researcher that serves to confirm, reject or provide new insights into the mechanical causes of below par performance by a golf team member.

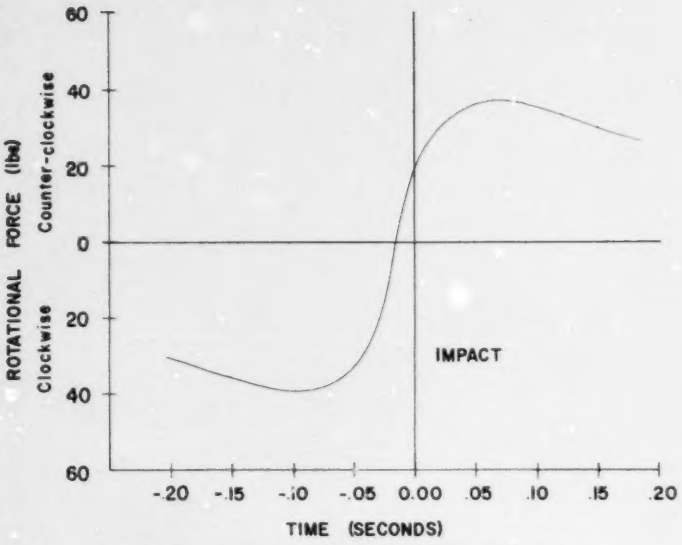

Figure 4. Rotational forces during the golf swing.

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MARKING THE GOLF COURSE

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It is difficult, if not impossible, to interpret and administer the rules of golf if the course on which the competition is being played is not properly defined. According to the Rules of Golf, Rule 36-6 stipulates that the committee shall define accurately:

a. The course and out-of-bounds
b. The margins of hazards, water hazards, and lateral water hazards, where there is any doubt
c. Ground under repair
d. Obstructions

The official should first tour the entire course to see the condition of the course before lining off any areas. As far as possible, consistency from hole to hole should prevail.

Tee Markers

Only one set of markers should be left on the course if all players involved in the competition are to use the same set. They may be marked daily by number according to where they are to be placed for each day's play (1, 2, 3, 4) using spray paint. A line in front of the number should be drawn even with the front of the tee markers. If they are removed, play can still continue. New markers can easily be put in the same location. (See Figure 1.)

Out-of-Bounds

Stakes, fences and white lines are used to mark out-of-bounds. Be certain to spray whatever is used *white*. When stakes are used for out-

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This article is based on extensive observation by the author who interviewed the most knowledgeable authorities in the country on the subject and accompanied various members of the PGA Tour as they marked courses. A visit with a member of the USGA Committee verified the findings.

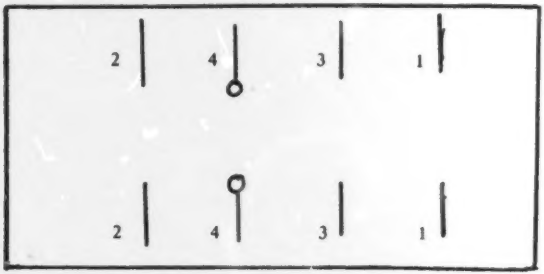

Figure 1. Marking the teeing ground. 0 = Tee marker 4th day.

of-bounds, a 1 × 2-inch stake painted *white* with at least 30 inches of the stake above the ground is recommended.* The portion going into the ground should be creosoted for longer life. Paint sprayed around the base of each stake will allow the stakes to be replaced in the same spot if they are removed. Make certain that the entire course is tied in.

If the public roads dissect the course or if there are internal boundaries, be sure these are spelled out in the local rules. When there is an internal out-of-bounds, it is recommended that the stakes be extended no farther than the point where the longest hitters can hit their tee shots. A short line at right angles to the end of the line should extend toward the fairway of the hole being played to indicate where it ends. When stakes are used they should be placed approximately 50 yards apart in an area near the teeing ground and approximately 25–30 yards apart in areas coming into play. Place the stakes close enough to sight from one to the next without bushes, etc., intervening. Avoid marking small areas jutting into the playing area as out-of-bounds. A player should not get the impression he is deliberately being fooled. The out-of-bounds line should be continuous and straight if at all possible. Sometimes it is necessary to make the playing area greater in order to do this.

If it becomes necessary to alter the boundaries on a succeeding day of play due to previous poor judgment or other factors, all players

*Colors and sizes used in this article are only recommendations; other colors and sizes of stakes may be used. The color code should always appear on the local rules sheet.

should be notified of the change before starting play. Remember, out-of-bounds is not limited to the outside boundaries of a course even in major tournaments, particularly when the safety of other players and spectators is a consideration.

Water Hazards

Water hazards may be defined by *yellow* stakes, *yellow* paint lines or both. When both lines and stakes are present, the stakes are used only to indicate the type of hazard. In this case only a minimum number of stakes are necessary. Dyed concrete plugs (the size of a cup) may be buried level with the ground if preferred. They are easy to mow over and can be kept from being covered by grass by putting a chemical around the plug once or twice a year. The recommended size of the stake is 1 × 2-inches with 8 inches appearing above the ground. The thin part of the stake should be facing the line of play so the stake will least likely be hit.

Although the committee is permitted to make any part of a water hazard lateral, it should not do so unless for a good reason, such as to speed up play, award a fairer penalty or for an equally good reason. Most water hazards located behind greens are more practical to play as lateral water hazards. Where water hazards end and lateral water hazards begin, *yellow and red stakes should be placed together* so that they touch.

The line should be placed as far from the water's edge as the water is known to rise after the heaviest rainfall. Many times the line is easily defined by the slope or fall of the ground toward the water. It is undesirable to have the body of water rise beyond the stake or line, part of it becoming casual water. Too much area between the water's edge and stake line may create problems for the unobserving player; in most cases, they associate the water with the line. Stakes are a necessity in such areas to assist the player to determine if the ball crossed the line.

On the professional golf tour, there is a trend to avoid marking a body of water both as a water hazard and a lateral water hazard because it is often difficult to see where the ball *last* crossed the margin of the water hazard. In such instances it is marked as a lateral water hazard, thus simplifying rulings and making play fairer for all.

Lateral Water Hazard

The size of the stake and a similar procedure used for marking a water hazard exists except the color used to define a lateral water hazard

is *red*. Definition 14 should be studied carefully when deciding which areas should be marked as water hazards and which should be marked as lateral water hazards.

When water is marked as a lateral water hazard, care should be taken to mark the line high enough on the slope of a sidehill to permit the player to select the two club-lengths option if he wishes to do so, and be given a reasonable chance to end up with a fairly level stance. Again the line should be placed so that the lateral water hazard will not rise beyond the line after the heaviest rainfall, part of it becoming casual water.

Drop Areas

When using drop areas, place an appropriate sign within the area in an out-of-the-way location so as to distinguish it from "ground under repair." Make the area large enough to allow for a reasonable lie after excessive divot taking. The area to be used should be enclosed by *connecting white lines*. Make certain the drip area is reasonably flat and not sloping.

Drop areas are often used in situations where the better shot is often penalized more than the poorer one. Example: On some long par three holes a ball that hits near the green is sucked back into the water. Sometimes the only logical option that exists due to the terrain is the stroke and distance option. A player who hits a shorter shot into the lateral water hazard can find an area where a drop can be made without losing the entire distance. Drop areas are usually essential to speed up play when there is a large lake.

It is sometimes necessary to make more than one drop area on a hole, as a player may not drop nearer to the hole than the rule which covers the situation dictates. When drop areas are made for water hazards or lateral water hazards, the player may select one of the other options available rather than use the drop area. When drop areas are made for other relief situations other than for water, the player may be limited to only using the drop area for relief. It should be spelled out on the Local Rules Sheet or on the scorecard whether a *choice* or a *must* procedure is to be followed.

Ground under Repair

1. The primary reason for marking areas as ground under repair is to insure fairness—to grant relief from a bad lie which may have resulted from a good shot. Inferior shots should not be rewarded

with relief. The recommended rule of thumb is to mark the bad areas of the fairway and the areas close to the fairway and near the green as ground under repair. Rarely is the area outside the ropes at major tournaments marked as ground under repair.

2. When stakes are used, they are often painted *orange*, although green and other colors can be used as long as the color key appears on the local rules sheet; when lines are used, they should be *white*. All lines should be connected. Spray paint will last longer than lime as lime washes away. It is recommended that stakes, when used, be uniform in size, using 1 × 2-inch stakes with 8 inches above the ground. Stakes are sometimes used in remote areas which rarely come into play, while lines are used in the usual playing areas. "Ground under repair" should be for temporary conditions. The area should be repaired as soon as possible.

   Paved paths and curbing are now automatically obstructions under the rules of golf as of January 1, 1976. Most golf car paths have a worn out area immediately adjacent to them which may be marked as "ground under repair." However, to eliminate excessive marking as well as excessive drops, USGA Decision 76-31, dated November 15, 1976, states: "White lined areas tying into artificially surfaced roads or paths have the same status as the roads or paths and thus they are obstructions, not ground under repair. Relief without penalty is provided under rule 31-2B(1)." This wording should be used on the local rules sheet.
3. The lines should be carefully marked. Riding in golf cars while marking these areas is not recommended. Avoid marking several small areas near one another rather than one longer area to prevent players "leap frogging" from one area to another. Also consider the contour of the drop area and the possibility of loss of distance. Unpaved roads and paths are rarely marked as ground under repair.

   After each day of the competition, the stakes should be checked to see that they have not been moved and the lines should should be viewed to see that they are clear and have not worn off. Areas of "ground under repair," whether new or overlooked, should be marked before the competition commences on each day of the event. Once the players have teed off on any day, new areas should not be marked unless the committee is reasonably certain that no other competitor has played a ball from the area in question.

Obstructions

Movable obstructions may be marked with *black* stakes or a small *black* circle on the obstruction, if there is good reason why it should

not be moved. Immovable obstructions such as large permanent obstructions should also be cornered with *black* stakes or by placing a small *black* circle on course buildings. The recommended size of the stake is 1 × 2-inches with 8 inches above the ground. Obstructions may also be surrounded by white lines with a notice regarding the marking of obstructions on the rules sheet.

Fairways

When the condition of the course warrants using "preferred lies" or "winter rules" when in the fairway of the hole being played, it may be necessary to outline the fairways with a white line if there is not a definite line made by the difference of the cut of the rough. If only a large portion of a fairway or only a couple of holes are in poor condition, it is suggested to only play "preferred lies" on these sections or holes, specifying this fact on the rules sheet. When the total course is played using "preferred lies" when on the "fairway" of the hole being played, it is necessary to extend a line from each fairway a few yards behind each green, making a "keyhole" pattern on each hole, thus separating the "fairway" of one hole from that of another hole.

Hole Locations on the Putting Green

The 11 points recommended by the USGA (Decision 72-23) regarding hole locations on the putting green are as follows:

1. Study the design of the hole as the architect intended it to be played. Know the length of the shot to the green and how it may be affected by the probable conditions for the day—that is, wind and other weather elements, condition of the turf from which the shot will be played, and holding quality of the green.
2. There must be enough putting green surface between the hole and the front and sides of the green to accommodate the required shot, e.g., for a long iron or wood shot to the green, the hole should be located deeper in the green and further from its sides than may be the case for a short pitch shot. In any case, the USGA recommends that the hole be located at least five paces from any edge of the green. If a bunker is close to the edge, or if the ground slopes away from the edge, the distance may well be greater, especially if the shot is more than a pitch. Consideration should be given to fair opportunity for recovery after a reasonably good shot that just misses the green.

3. An area two to three feet radius around the hole should be in good condition without any steep slopes, or if possible, any changes in the degree of slope. In other words, the green in the holing-out area should be as nearly level as possible and of uniform grade, but it need not be exactly level. In no case should holes be located in tricky places or on sharp slopes where a ball can gather speed. A player above the hole should be able to putt with a reasonable degree of boldness and not purely defensively.
4. Consider the condition of nearby turf, especially taking care to avoid old hole plugs which have not completely healed.
5. Holes should be cut as nearly on the vertical as possible, not plumb with the contour of the green.
6. There should be a balanced selection of hole locations for the entire course with respect to left, right, central, front and back positions, e.g., beware of too many left positions with resulting premium on drawn or hooked shots.
7. For a competition played over several days, the course should be kept in balance daily as to the degree of difficulty. In a stroke competition, the first hole of the first round is as important as the last hole of the last round, and so the course should not be set up appreciably more difficult for any round. Balanced treatment is the aim. An old concept of making the course progressively harder round after round is falacious. One form of balanced daily treatment is to select six quite difficult hole locations, six that are somewhat less difficult, and six of moderate difficulty.
8. In early rounds, anticipate player's traffic patterns and avoid locating many holes when walking across the green by many players could spoil good hole locations for later rounds.
9. In match play, a hole location may be changed during a round, if necessary, provided the opponents in each match play the same location. In stroke play, Rules 36-4A require that all competitors in a single round play with each hole cut in the same position. When 36 holes of stroke play are played in one day, it is not customary for a hole location to be changed between rounds, but there is no rule to prohibit such a change. If they are changed, all competitors should be informed.
10. The greenskeeper who cuts the hole should make sure that the rules of golf are observed, especially the requirements that the hole liner not exceed 4¼ inches in diameter, and that it be sunk at least 1 inch below the putting green surface. (Definition 15)
11. During practice days before a competition, it is advisable to locate holes in areas not likely to be used during play, preferably at the

fronts and the backs of greens, bearing in mind the areas which will be impaired by foot traffic patterns.

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The Golf Journal, United States Golf Association, Far Hills, NJ 07931.
Golf Magazine, 235 East 45th Street, New York, NY 10017.
Golf Shop Operations, Golf Digest, Inc., 297 Westport Avenue, Norwalk, CT 06856.
Golf World, Post Office Box 2000, Southern Pines, NC 28387.
The Lady Golfer International, Seidal Publications, Box 1118, Scottsdale, AZ 85252.
The Professional Golfer, PGA National Headquarters, Post Office Box 12458, Lake Park, FL 33403.

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GOLF AUDIOVISUAL AIDS

MARGARET CUMMINS

Prices listed are subject to change. Numbers in parentheses refer to film distributors listed on page 126. A comprehensive list of golf films may be acquired from the National Golf Foundation, Form AC-1. The Foundation's address is 200 Castlewood Drive, North Palm Beach, FL 33408.

Films (16mm unless otherwise specified)

Common Swing Errors of Beginning Golfer. 21 min., sound, b&w. Rental $3.25. Shows correct swing and 10 common errors of beginning golfers. (10)

Encounter In a Gentle Place. Sound, b&w. Depicts life on the Ladies Professional Tour. (4)

Golf Advanced. 10 min., 16mm and 8mm. Sale or rental. Club selection and techniques of executing golf's special shots. (3, 9)

Golf: Building Your Swing. 27 min., sound, b&w. Rental from Indiana University, University of Wisconsin, PGA. Shows developing natural swing through stance, rhythm, upper and lower body movement. (1, 6, 11)

Golf: Pitching, Pitch and Run and Sand Shots. 12 min., sound, b&w. Rental from Indiana University, University of Wisconsin, PGA. Covers fundamentals of short approach shots and explosion shots from sand. (1, 6, 11)

Golf: Putting. 10 min., sound, b&w. Rental from Indiana University, University of Wisconsin, PGA. Covers wrist, tap and stroke methods of putting and reading greens. (1, 6, 11)

Keep 'Em In the Fairway. 38 min. Loan from PGA. Emphasizes the five golf fundamentals which PGA believes are essential to every golf swing. (6)

The Masters 1970–1977. 40 min. Behind the scenes at Augusta. Selected accounts of each year's tournament and course descriptions. (8)

Modern Golf Instruction Films. Sound, color. 6 units. Sale or rental. Newest films for golf instruction. (5)

Unit I. Golf–A Special Kind of Joy. Sale $160. Introduction to game of golf, equipment and swing.

Unit II. How to Build a Golf Swing. Two 17 min. reels. Sale $340. Understanding of swing movements emphasizing six major concepts.

Unit III. The Short Approach Shots. 10 min. Sale $100. Pitch and chip with swing adaptation and course factors.

Unit IV. The Special Challenge Shots. 15 min. Sale $150. Swing adaptations for weather, recovery, course design and topography.

Unit V. Putting–Golf's End Game. 13 min. Sale $130. Geometric factors of putting, building stroke and confidence.

Unit VI. Courtesy On The Course. 18 min. Sale $120. Golf course etiquette and playing procedures.

Rules of Golf: Hazards. 18 min., sound, color. Rental. Covers rules for bunkers and water hazards. (12)

Sweeten Your Swing. 26 min., sound, color. Sale $275, rental $75. Features LPGA players giving detailed instruction on swing and special shots. (7)

Tips From Top Pros. 12 min., sound, b&w. Rental $15 each. Instruction by top touring pros. (9)

No. 1 How to Handle Each Club
No. 2 Trouble Lies
No. 3 Long Irons
No. 4 Grip
No. 5 Trouble Shots

Winning Secrets of Golf. 21 min., sound, b&w. Rental or sale. Instructional tips on all aspects of the game. Featuring Sam Snead and Billy Casper, Jr. (9)

Women's World of Golf. Three reels. Sale (9) or rental. (6)

Patty Berg: Basic swing, fairway woods, hook and slice and sand shots. (15 min.)

Betsy Rawls: Short irons, chipping and putting. (17 min.)

Mickey Wright: Swing technique for hitting the long ball. (20 min.)

Filmstrips (35mm)

Golf Group Instruction. Color, sound. Sale. AAHPER/Lifetime Sports Education Project illustrating group teaching techniques. (5)

Slides (35mm)

Golf Rules In Pictures. $25 per set. Explains basic rules based on USGA publication, *Golf Rules in Pictures.* (12)

Basic Golf Rules. 140 color coded slides. Sale $150 per set—includes carousel tray and index. Appropriate for teaching rules to beginners or advanced players. (2)

Rules of Golf. 30 min., 35mm carousel and synchronizer. Loan or rent. Narrated rules of golf. (6)

Film Distributors

(1) Circulation Department, Audio Visual Center, Indiana University, Bloomington, IN 47401.
(2) Iowa State University, Media Resources Center, 121 Pearson Hall, Ames, IA 50010.
(3) Lewis Film Service, 1425 East Central, Wichita, KS 67214.
(4) Ladies Professional Golf Association Office, 919 Third Avenue, 44th Floor, New York, NY 10022.
(5) AAHPER Educational Media Services, 1201 Sixteenth Street, N.W., Washington, DC 20036.
(6) Professional Golf Association Audio-Visual Library, Box 12458, Lake Park, FL 33403.
(7) Pentagon Park Tower, 4940 Viking Drive, Minneapolis, MN 55435.
(8) Pontiac Masters Drawer 9430, Lansing, MI 48908.
(9) Sportlite Films, 20 North Wacker Drive, Chicago, IL 60606.
(10) University of Iowa, Division of Extension and University Services, A-V Center, Iowa City, IA 52240.
(11) University of Wisconsin-Extension, Bureau of Audio-Visual Instruction, 1327 University Avenue, Post Office Box 2093, Madison, WI 53701.
(12) United States Golf Association, Film Library, Golf House, Liberty Corners Road, Far Hills, NJ 07931.

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